सत्यमेव जयते

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)
National Highways Authority of India
(Ministry of Road Transport & Highways, Government of India)
परियोजना कार्यान्वयन इकाई, अजमेर
बी-136-सी, बी-ब्लॉक, पंचशील नगर, अजमेर-305004 (राज.)
Project Implementation Unit, Ajmer
B-136-C, B-Block, Panchsheel Nagar, Ajmer-305004 (Raj.)
Ph. No.: 0145-3559245/ 2680571, E-mail / ई-मेल : ajmer@nhai.org, Web./ वेब : www.nhai.gov.in

No. NHAI/Ajm/KAB/NH-8/Access-Utility/Overhead-RIV4BTPL/19606 *Date: 04.08.2025*

सार्वजनिक टिप्पणियों का आमंत्रण / Invitation of Public Comments

विषय: Establishment of 400 kV & 765 kV Transmission System for Evacuation of Power from Rajasthan REZ Phase-V (Part-4: 3.5 GW)" in accordance to approval of Govt. u/s 68 of Electricity Act, 2003 – **Submission of overhead crossing proposals in the under construction 765 kV D/C transmission line RIV4BPTL with NH-458 near Village-Idwa between Chainage 99 & 100 – reg.**

संदर्भ: M/s. Rajasthan IV 4B Power Transmission Ltd. letter no. RIV4BPTL/TBCB/MDTL-41 dated 03.06.2025.

सर्व संबंधितों को सूचित किया जाता है कि मैसर्स राजस्थान IV 4बी पॉवर ट्रांसमिशन लि., नागौर द्वारा उपरोक्त संदर्भित पत्र दिनांक 03.06.2025 के माध्यम से विषयगत कार्य के लिए एक प्रस्ताव, सक्षम प्राधिकारी, राजमार्ग प्रशासन के अनुमोदन हेतु इस कार्यालय को प्रस्तुत किया है। It is to inform all concern that M/s. Rajasthan IV 4B Power Transmission Ltd., Nagaur vide above cited letter dated 03.06.2025 has submitted a proposal to this office for subject work for approval of Competent Authority, Highway Administration.

2. यह प्रस्ताव राजस्थान राज्य के ग्राम–ईडवा, जिला–नागौर में एनएच–458 निम्बीजोधा–डेगाना–मेड़तासिटी खंड के किमी 99 से 100 के मध्य ओवरहेड विद्युत लाईन/हाई टेंशन 765 केवी डी/सी मेड़ता (II) – दौसा ट्रांसमिशन लाईन क्रॉसिंग की अनुमति प्रदान करने के लिए है। The Proposal is for grant of Permission for Overhead Electrical Line/Overhead High Tension 765kV D/C Merta (II)-Dausa Transmission Line at NH-458 between Km 99 to 100 near Village-Idwa, District-Nagaur in the State of Rajasthan.

3. मंत्रालय के दिनांक 22.11.2016 के परिपत्र संख्या आरडब्ल्यू/एनएच–33044/29/2015 एसएंडआर (आर) के पैरा–4 के अनुसार, दावे और आपत्तियां (सार्वजनिक असुविधा, सुरक्षा और सामान्य सार्वजनिक हित के आधार पर) मांगने के लिए आवेदन को 30 दिनों के लिए सार्वजनिक डोमेन में रखा जाएगा। As per para-4 of Ministry's Circular No. RW/NH-33044/29/2015 S&R (R) dated 22.11.2016, the application shall be put out in the public domain for 30 days for seeking claims and objections (on ground of public inconvenience, safety and general public interest).

4. उपरोक्त के मद्देनजर, सक्षम प्राधिकारी के अनुमोदन से पहले, मंत्रालय के दिनांक 22.11.2016 के परिपत्र के संदर्भ में, इस खंड पर क्रॉसिंग बिछाने और पार करने के कारण प्रभावित जनता की टिप्पणियाँ/आपत्तियाँ आमंत्रित की जाती हैं। आपत्तियाँ/टिप्पणियाँ नीचे दिए गए पते पर निर्धारित तिथि **03.09.2025** तक भेजी जा सकती हैं, नियत तिथि के बाद कोई भी टिप्पणी/आपत्ति स्वीकार नहीं की जाएगी। In view of the above, before approval of the Competent Authority, the comments/objections of affected public is hereby invited with reference to the Ministry's circular dated 22.11.2016 due to laying and crossing of utility on the subjected stretch. The objections/comments may be addressed to the below mentioned address upto **31.08.2025**, beyond due date, no comments/objections will be accepted.

परियोजना निदेशक, प.का.ई.–अजमेर भारतीय राष्ट्रीय राजमार्ग प्राधिकरण बी–136–सी, बी–ब्लॉक, पंचशील नगर, अजमेर–305004 टेलीफोन: 0145–2680571, ई–मेल: ajmer@nhai.org	**Project Director, PIU-Ajmer** National Highways Authority of India, B-136-C, B-Block, Panchsheel Nagar, Ajmer-305004 Tel.: 0145-2680571, E-mail: ajmer@nhai.org

(हरि सिंह गीला)
परियोजना निदेशक

प्रतिलिपि:

1. वेब प्रशासन, भाराराप्रा, मुख्यालय, नई दिल्ली – भाराराप्रा की वेबसाईट पर अपलोड करने हेतु [web-admin@nhai.org]
2. निदेशक, एनआईसी, नई दिल्ली – मंत्रालय की वेबसाईट पर अपलोड करने हेतु [mansoor@nic.in]
3. क्षेत्रीय अधिकारी, भाराराप्रा, क्षेत्रीय कार्यालय, जयपुर – को सूचनार्थ प्रेषित।
4. अधिकृत प्रतिनिधि, M/s. Rajasthan IV 4B Power Transmission Ltd., Nagaur – को सूचनार्थ प्रेषित।

Rajasthan IV 4B Power Transmission Limited

A-31, 1st Floor, Above Bajrang Honda, Krishi Mandi Road, Opposite RICCO Ind. Area, Merta City, Nagaur, Rajasthan 341510
Email-rivbptl@gamil.com

Ref: RIV4BPTL/TBCB/MDTL-41 **Date: 03-06-2025**

To,
The Project Director,
NHAI, Ajmer Division
Dist -Nagaur, Rajasthan

Subject: "Establishment of 400 kV & 765 kV Transmission System for Evacuation of Power from Rajasthan REZ Phase-IV (Part-4: 3.5 GW)" in accordance to Approval of Govt. u/s -68 of Electricity Act.2003 - **Submission of overhead crossing proposals in the under construction 765 kV D/C transmission line RIV4BPTL with NH-458 Near Village-Idwa between chainage 99 & 100 - Reg.**

Ref: Prior approval of the Government of India under Sec-68 (I) of the Electricity Act 2003 to 'M/s Rajasthan IV 4B Power Transmission Limited (RIV4BPTL) dated 18.11.2024.

Dear Sir,

Reference is made to the above referred subject and relevant approvals, we would like to intimate to your good office that, M/s Rajasthan IV 4B Power Transmission Limited (RIV4BPTL) has been entrusted by GoI to implement the Inter-state Transmission Scheme for establishment of "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B". The said Transmission Scheme is authorized by the Govt of India. The Government of India has already granted their approval under Sec-68 (I) of the Electricity Act 2003.

The Details of line crossings are as per given: The 765KV D/C Merta-II - Dausa Transmission line is proposed to cross the following National highway in near village Idwa, Degana, Nagaur District (Rajasthan).

Sr. No	Name of the Existing NH to be crossed	Crossing between Chainage	(Crossing Tower Nos of the U/C Line of RIV4BPTL)		Crossing Span 'mtr'	Angle of Crossing	Clearance of bottom wire to top of NH in 'mtr'
1	NH-458 (Ladnun – Mertacity)	(Crossing exactly between chainage KM99 – KM100)	AP 20	AP 21	241	83°33'30''	31.99

All the necessary documents are herewith furnished for your kind perusal & needful please. The following documents are as per below:

1. The crossing Profile of the 765KV D/C Merta (II) – Dausa Transmission line proposed crossing – Drawing
2. Tower schedule of proposed crossing of 765KV D/C Merta (II) – Dausa Transmission line.
3. Single Line Diagram of the tower and Checklist.

Hence we request you to kindly look into the proposal and do the needful to provide the approval/NOC at the earliest for timely completion of this line.

Thanking you and looking forward for kind support to complete this fast-track project of national importance as per the scheduled timeline.

For Rajasthan IV 4B Power Transmission Limited

Rajasthan IV 4B Power Transmission Limited

Laxminarayan Dash
(GM -Transmission)
Contact No. – 7586986705
Encl.: - As per the above

No. 25-17/99/2024-PG
Government of India
Ministry of Power
***

Shram Shakti Bhawan, Rafi Marg
New Delhi -1, Dated 18th November 2024

To,

The Director,
M/s 'Rajasthan IV 4B Power Transmission Limited,
Core-4, Scope Complex, 7 Lodhi Road,
New Delhi – 110003
Email:jaspal@recl.in

Subject: Prior approval of the Government of India under Section 68 (1) of the Electricity Act, 2003, for installation of overhead transmission line under the transmission scheme "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B" to 'Rajasthan IV 4B Power Transmission Limited' - regd.

Sir,

I am directed to refer to M/s RECPDCL's online application on NSWS portal dated 19.09.2024, seeking prior approval of Government of India under Section 68 (1) of the Electricity Act 2003, in favour of M/s Rajasthan IV 4B Power Transmission Limited, a wholly owned subsidiary of REC Power Development and Consultancy Limited, for installation of the following overhead transmission lines under the transmission scheme "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B":

(i) Barmer-I PS – Merta-II 765 kV D/c line
(ii) Merta-II – Beawar 400 kV D/c line
(iii) Merta-II – Dausa 765 kV D/c line

2. Ministry of Power vide notification in Gazette (No. 2178) dated 14.06.2024 has appointed REC Power Development and Consultancy Limited as Bid Process Coordinator for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish the transmission scheme "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B" to be implemented through Tariff Based Competitive Bidding route. REC Power Development and Consultancy Limited, the Bid Process Coordinator, has incorporated the SPV, 'Rajasthan IV 4B Power Transmission Limited', for implementation of the scheme.

3. Based on the recommendation of Central Electricity Authority (CEA); Ministry of Power, Government of India conveys the prior approval under Section 68 (1) of the Electricity Act, 2003 to the SPV, M/s Rajasthan IV 4B Power Transmission Limited for installation of the following overhead transmission lines under the transmission scheme "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B":

Contd/...

- Barmer-I PS – Merta-II 765 kV D/c line
- Merta-II – Beawar 400 kV D/c line
- Merta-II – Dausa 765 kV D/c line

4. The approval would be subject to compliance of:

(i) The relevant provisions of the Electricity Act, 2003, as amended from time to time and the rules and regulations made there under, and

(ii) CEA (Measures relating to Safety and Electric Supply) Regulations, 2023, and any subsequent amendments made thereto.

(iii) The recommendations/suggestions of the Expert Committee constituted by Hon'ble Supreme Court of India vide order dated 21.03.2024 in Writ Petition (Civil) No. 838 of 2019, and any further direction by Hon'ble Supreme Court of India.

5. The approval would also be subject to the following conditions:

(i) The implementing agency will commence construction of the project within three years of grant of approval, unless this term is extended by Ministry of Power.

(ii) Ministry of Power may withdraw the approval before the expiry of the period of three years after giving a one-month notice.

(iii) The implementing agencies shall abide by the provisions of Works of Licensees Rules, 2006 notified by the Govt. of India, Ministry of Power in the Gazette of India, extra-ordinary Part-II, Section 3(i) dated 18-04-2006 (vide GSR 217 (E) dated 18-04-2006).

Yours faithfully,

18/11/2024

(Deepak Rao)
Director
Tele: 011-23716674

Copy to:

The Chairperson,
Central Electricity Authority,
Sewa Bhawan, R.K. Puram, New Delhi 110066.

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765KV D/C Merta-II - Dausa Transmission Line.

CHECK LIST

Guidelines for Project Directors for processing the proposal of laying over Head Electrical Line Crossing National Highway Vested with NHAI

Relevant Circulars/Codes: -

1) Ministry of Road & Transport & Highway Letter No. 33044/29/2015/S&R(R) Dated 22.11.2016
2) Ministry Circular No. NH-III/P/20/77 Dated 08.04.1982
3) Indian Electricity Act – 1910
4) Indian Electricity Rules-1956
5) IRC:32-1969
6) IS:5613-1976 Part-I to IV

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing in Ladnun To Merta City National Highway –458			
Sl. No.	Item	Information/Status	Remarks
1	General Information		
1.1	Name and address of the applicant with Full Address	Laxminarayan Dash, General Manager Address – First floor, Bajrang Honda, Krishi Mandi Road, Opposite RICCO Industrial Area, Merta City (Rajasthan) 341510	
1.2	National Highway Number	NH-458 Between Chainage KM99 – KM100	
1.3	State	Rajasthan	
1.4	Location	Near Idawa Village, Dist- Nagaur	
1.5	Name of the Line	765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited	
1.6	Chain-age in Km	Between Chainage KM99 – KM100	
1.7	Length in Meter (NH Crossing Span of Tower Line)	241.0Mtrs	As per guidelne NH X-ing span should be < 250M
1.8	Width of available ROW (765 KV)	67.0Mtrs	As per Electricity Act-2003
	a) Left side from center line towards increasing chain-age/ km direction.	33.5.0Mtrs	
	b) Right side from center line towards increasing chain-age/km direction	33.5Mtrs	
1.9	Proposal to lay overhead		
	a) Left side from center line towards increasing chain-age/Km direction	NA	
	b) Right side from center line towards increasing chain-age/ Km direction	NA	

Power Transmission Limited Rajasthan IV 4B

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing In Ladnun To Merta City National Highway –458			
Sl. No.	Item	Information/Status	Remarks
	c) Crossing of NH number	NH-458 Chainage KM99 – KM100	
1.10	Proposal to acquire land		
	a) Left side from the center line	Not Applicable	
	b) Right side from the center line	Not Applicable	
1.11	Whether proposal is		
	a) In the same side where land is not to be acquired	Land acquisition is not involved.	
	b) Crossing the National Highway	Yes, the overhead electrical towers are to be laid both side in the agricultural field away from the NH boundary	
	If not then where to lay the overhead Electrical Line		
1.12	Details of already laid services (overhead) Telecommunication line, overhead Electrical line etc.) if any, along proposed route / proposed crossing	No Overhead of any Telecommunication/Electrical Line at Crossing Point	
1.13	Number of lanes (2/4/6/8 lanes) existing	2 Lanes	
1.14	Proposed number of lanes (2 lane with saved shoulders /4/6/8)	NA	
1.15	Service road existing or not	NA	
	If yes then which side	NA	
	a) Left side from the center line	NA	
	b) Right side from the center line	NA	
1.16	Proposed Service Road	NA	
	a) Left side from the center line	NA	
	b) Right side from the center line	NA	
1.17	Whether proposal to lay overhead Electrical line is after the service road or between the service road and main carriage way, or crossing the National Highway.	Over Head crossing of the National Highway-458	
1.18	The Permission of laying Over Head Electrical Line shall be considered for approval / rejection based on the Ministry Circulars and relevant codes.	Yes. Pl Consider for approval.	
1.19	If crossing of the road involved		
	A) Is it on a line normal to NH and provide length of crossing span.	Angle of Crossing – 83°33'30'' Length of Crossing Span – 241 Mtr	
	B) Structure (Towers, tension towers, pole for HT line only) for crossing shall not be to near to the existing structures on the National Highway, the minimum distance being 15 meters.	Distance is more than 25 mtrs as mentioned below	

Power Transmission Limited ★ Rajasthan IV 4B

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing in Ladnun To Merta City National Highway –458			
Sl. No.	Item	Information/Status	Remarks
	i) Type of Existing / Proposed structure for National Highway. ii) What is the distance of tower, pole and tension towers from the existing/proposed structure of National Highway.	Tension towers, Tower type DB1+0 on one side and DC2+12 on the other side of NH. Tower No. AP20/0 (DB1+0) is **125M** from outer boundary of the existing National Highway and Tower No: AP21/0(DC2+12) **is 105M** from other side outer boundary of the National Highway. And the total width of the NH is **11M.**	
	C)The overhead lines and their supporting poles/ towers should ordinarily be placed at the extreme edge of the road land boundary. In any case, these shall be at 10 meters away from the edge of the existing traffic lane. Where the existing roadway is narrow than the minimum required according to standard or where the widening is proposed for any reason, the lateral clearance shall be reckoned with respect to ultimate road way. **What is the horizontal clearance from the extreme edge of the road boundary?**	YES **The horizontal clearance from** Tower No: AP20/0 (DB1+0) is **120M** and AP21/0 (DC2+12) is **100M** from **Extreme Road Boundary** of NH-458	
	d) The overhead lines and their supporting poles/towers should be ordinarily being placed at a minimum distance of 5.0m from the nearest line of avenue trees.	Overhead line supporting is far away from the nearest line of avenue trees.	
	e) In Mountainous / hilly terrain the overhead lines should be erected preferably on the valley side as far as away as practicable. In hilly region, level of ground at a suitable distance below the outer conductor on either side from the center line is also to be noted and marked in profile so as to ensure required ground clearance underneath conductor and side clearance in swing conditions. Is the proposal in hilly area?	No, Proposal is in plain terrain.	
	f) The horizontal clearances in respect of poles erected for the purpose of street lighting in urban situation shall be as under.	Not Applicable	
	i) For road with raised kerbs – Minimum 300 mm from the edge of the nearest kerb 600 mm being preferable.	Not Applicable	

Power Transmission Limited Rajasthan IV 4B

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing in Ladnun To Merta City National Highway –458			
Sl. No.	Item	Information/Status	Remarks
	ii) For road without raised kerbs – At least 1.5m from the edge of carriageway, subject to minimum of 5.0 meter from the center line of the carriage way.	Not Applicable	
	g) The pylons of HT lines along the crossing the road shall be located outside the National Highway land	YES	
	h) For crossing the line of same voltage or lower voltage, suspension/tension tower with suitable extension shall be used.	YES	
	i) The vertical clearance of the overhead lines crossing the road shall be reckoned from the top of the crown of the road considering the anticipated final top level due to future raising of road level, strengthening of pavement, etc. The actual ground clearance of high-tension lines for voltage above 650 volts varies depending upon the voltage transmitted and these are stipulated in Indian Standard Codes is 5613-1976 part I to IV and Indian Electricity Rules 1956 as under.	**31.99M from highest point in center of the NH road divider.**	As per the Indian Electricity Act – 2003 and Latest Guidelines from CEA the minimum clearance of 400 KV Double Circuit Line from NH center shall be **18.0 Mtrs.**
	For ordinary wire and line carrying low voltage up to and including 110 volts – 5500 mm	N/A	
	For electric power lines carrying low voltage up to and including 650 Volts – 6000 mm	N/A	
	For electric power lines carrying voltage exceeding 650 Volts – 6500 mm	N/A	
	220 KV – 7015 mm	N/A	
	765 KV – 18000 mm	The vertical clearance between top surface of existing National Highway and lowest point of the conductor at maximum possible sag is **31.99 Mtrs**	
	800 KV – 15000 mm	N/A	
	Note: These are minimum requirement where ever local authority requirement is higher, the same shall be provided. In case of HT line, Road crossing, the ground clearance at the road under maximum temperature and in still air shall be such that even with conductor bundle broken in adjacent span, the ground clearance of the conductor from the road surface shall not be less than 15.00	YES	
	What is the voltage of proposed line and clearance under maximum sag condition between lowest conductor of the proposed	The voltage of proposed line is 765KV, Clearance under maximum sag condition between lowest conductor of the	

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing in Ladnun To Merta City National Highway –458			
Sl. No.	Item	Information/Status	Remarks
	line and existing National Highway / future developed National Highway?	proposed line and existing National Highway is **31.99** M	
2	Documents/drawings enclosed with the proposal		
2.1	Cross section showing the size of trench for open trenching method	NA, as the crossing is overhead and across NH	
2.2	Cross section showing the size of pit and location of cable for HDD method	NA, as the crossing is overhead	
2.3	Strip/Route plan showing overhead Power Transmission line Chainage, width of ROW, distance of proposed cable from the edge of ROW. Important mile stone, intersections, cross drainage works etc	YES	
2.4	Methodology of laying Overhead Power Transmission Line	Yes, Enclosed	
2.4.1	Open trenching method, if yes methodology of refilling of trench	NA	
2.4.2	Horizontal Direction Drilling method	NA	
2.4.3	Laying of Overhead Electrical line through CD works and method of Laying	NA	
3	Draft License agreement signed by two witnesses	YES	
4	Performance Bank guarantee in favor of NHAI has to be obtained @Rs.100 per running meter (Parallel to NH) and Rs.100000/- per crossing of NH, for a period of one year initially (extendable if required till satisfactorily completion of work) as a security for ensuring / making good the area, clearing the debris / loose earth etc. produced.	NOT APPLICABLE as the tower is outside of the NHAI RIGHT OF WAY	
4.1	Performance bank guarantee as per above is to be obtained	NA	
4.2	Confirmation of BG has been obtained as per NHAI Guidelines	NA	
5	Affidavit / Under taking to be obtaining from (to the furnished by) the applicant.	YES	
5.1	Not to Damage to other utility, if damaged then to pay the losses either to NHAI or to the concern agency.	YES	
5.2	Undertaking for renewal of Bank Guarantee if required.	N/A	
5.3	Confirming all standard conditions as laid down in Ministry Circular No: NH-III/P/20 dated 08.04.1982, Indian Electricity Act –	YES	

Power Transmission Limited Rajasthan IV

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing in Ladnun To Merta City National Highway 458			
Sl. No.	Item	Information/Status	Remarks
	1910, Indian Electricity Rule – 1956, IRC – 32 - 1969 IS: 5613 – 1976 Part I to IV and NHAI's guideline.		
5.4	Shifting of overhead electrical line at their own cost as and when required by NHAI	NOT APPLICABLE	
5.5	Shifting of overhead electrical line at their own cost if require due to 4/6 lining/widening of National Highway.	YES	
5.6	Indemnity against all damages and claims what so ever kind that may be to NHAI or any third party in the ROW during installation, operation and maintenance.	YES	
5.7	Traffic movement during laying of overhead electrical line to be managed by the applicant.	YES	There will be minimal traffic halt of 5-5 Mins. Local Police & Traffic inspector will be intimated before the stringing work.
5.8	If any claim is raised by the Concessionaire then the same has to be paid by the applicant	YES	
5.9	Prior approval of the NHAI shall be obtained before undertaking any work of installation, shifting or repairs, or alterations to the overhead electrical line located in the National Highway Right of way.	YES	
5.10	Expenditure, if any, incurred by NHAI for repairing any damage caused to the National Highway by the laying, maintenance of the overhead electrical line will be borne by the agency owing the line.	YES	
5.11	If NHAI considers it necessary in future to move the utility line for any work of improvement or repairs to the road, it will be carried out as desired by NHAI at the cost of the agency owning the utility line within a reasonable time (not exceeding 60 days) of the intimation given.	YES	
5.12	Certificate from the applicant in the following format	YES	
	i)Laying of Overhead electrical line will not have any deleterious effect on any of the bridge components and roadway safety for traffic.	YES	

Power Transmission Limited Rajasthan IV 4B

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing in Ladnun To Merta City National Highway –458			
Sl. No.	Item	Information/Status	Remarks
	ii)For 6/8 lanning "We do undertake that I will relocate service road / approach road / utilities at my own cost notwithstanding the permission granted within such time as will be stipulated by NHAI for future six-lanning or any other development.	YES	
6	Certificate from the Project Directors:		
6.1	Certificate confirming that the proposal has been examined with respect to the structures and developmental work considered at this location and compliance of all standard condition issued vide ministry Circular No: NH – III/P/20/77 dated 08-04-1982, Indian Electricity Act – 1910, Indian Electricity Rules 1956, IRC: 32-1969, IS: 5613 – 1976 Part-I to IV and NHAI's guideline.	To be provided NHAI	
6.2	Certificate from PD in the following format		
	i) "It is certified that any other location of the Electric line would be extremely difficult and unreasonable costly and the installation of Electric line within ROW will not adversely affect the design, stability and traffic safety of the highway nor the likely future improvement such as widening of the carriageway, easing of curve etc"	To be provided NHAI	
	ii) For 6 lanning a) Where feasibility is available *"I do certify that there will be no hindrance to proposed six lanning based on the feasibility report considering proposed structures at the said location".*	To be provided NHAI	
	b) In case feasibility report is not available *"I do certify that sufficient ROW is available at site for accommodating proposed six lanning".*	To be provided NHAI	
7.	If NH section proposed to be taken up by NHAI on BOT basis – a clause is to be inserted in the agreement, "The Permitted Highway on which License has been granted the right to lay Overhead Electrical line has also been granted as a right of way to concessionaire under the concession agreement for up- gradation of. (Km 99 to km 100, NH No: (NH : 458) on build, operate and transfer basis) and therefore, the license shall honor the same.	To be provided NHAI	

Power Transmission Limited Rajasthan IV 4B

Check list for laying 765KV D/C Merta-II - Dausa Transmission Line. Rajasthan IV 4B Power Transmission Limited for Over Head Crossing in Ladnun To Merta City National Highway –458			
Sl. No.	Item	Information/Status	Remarks
8.	Who will supervise the work of laying of overhead electrical Line	Competent person from M/s Rajasthan IV 4B Power Transmission Limited.	
9.	Who will sign the agreement on behalf of overhead electrical line agency.	Project Manager (Authorized Signatory) Rajasthan IV 4B Power Transmission Limited.	
10.	Who will ensure that the defects in road portion after laying of overhead electrical line are corrected and if not corrected then what action will be taken.	Project Manager (Authorized Signatory) from Rajasthan IV 4B Power Transmission Limited.	
11.	Who will pay the claims for damages done/disruption in working of concessionaire if asked by the concessionaire?	Project Manager (Authorized Signatory) from Rajasthan IV 4B Power Transmission Limited.	
12.	A Certificate from PD that he will enter the proposed permission in the register of records of the permissions in the prescribed proforma (copy enclosed)	Not Applicable	
13.	If any previous approval is accorded for laying of overhead electrical line then photocopy of register of records of permissions accorded as maintained by PD may be enclosed.	Not Applicable	
For Rajasthan IV 4B Power Transmission Limited.		**For National Highway Authority of India- Ajmer (Rajasthan)**	
Power Transmission Limited ★ Rajasthan IV 4B			

Application Details [20250531/1/1/37910/55906]	
Highway	NH458 [NH458] Category: 2 Lane
District and State	NAGAUR (RAJASTHAN)
Location	0.000-139.900
Chainage in Km	99 (Km) To 100 (Km)
Side of NH (Left or right side of NH towards: Increasing Chainage/ Km/ Direction)	Left
Name of Highway Authority	**NHAI** Dwarka New delhi
Highway Administration Address	**Ajmer** Ajmer
Name of Applicant/Oil Company	Rajasthan IV 4B Power Transmission Limited Address: A-31, 1st Floor, Bajrang Honda, Krishi Mandi Road, Opposite RICCO Industrial Area, Merta City, Rajasthan - 341510, NAGAUR (RAJASTHAN), PIN: 341510 Phn: 6361296326 Email: rivbptl@gmail.com
Application Type	New
Application Category	
Submitted On	

Details

Locations

Sno	Highway /Stretch	From (Km.)	From (To.)	Details
1	NH458 [NH458] (0.000-139.900)	Km: 99 Lat: 26.81908482 Lng: 74.274291605	Km: 100 Lat: 26.81907734 Lng: 26.81907734	Area(Sq.Mt.): 0 Crossing Overhead Diameter(Mt.): 30 Length(Mt.): 29.63

bharatkosh.gov.in
Government of India Receipt Portal

RECEIPT

Transaction Ref.No. Dated:

Received from _____ with Transaction Ref.No.

Dated _ the sum of _0 ( )_ through Internet based Online payment in the account of

_ , .

Disclaimer:- This is a system generated electronic receipt, hence no physical signature is required for the purpose of authentication

Printed On: 02-06-2025 12:58:21

Courtesy :- Controller General of Accounts

Government of Rajasthan

प्रभावी दिनांक : 01/12/2024

REGISTRATION & STAMPS DEPARTMENT, RAJASTHAN

Print Date : 02/06/2025

Sub-Registrar : DEGANA

List of Rural DLC Rate

Time: 13:16:24PM

District: NAGAUR

Village Name & Classification		Category	Exterior(₹)	Interior(₹)	Unit
IDWA (ईड़वा)					
1	Commercial-Far away from other road अन्य सड़क से दूर	C	3900	-	Sq Mtr
2	Commercial-Near from other road अन्य सड़क के पास	C	4800	-	Sq Mtr
3	Commercial-Other dlc rateNH अन्य प्रचलित डीएलसी दर	C	7100	-	Sq Mtr
4	Irrigated-Far away from other road अन्य सड़क से दूर	A	251000	-	Hectare
	Irrigated-Near from other road अन्य सड़क के पास	A	352000	-	Hectare
6	Irrigated-NH/SH/MH/Other 0 to 100 meterNH NH/SH/MH/अन्य 100 मी. तक-IDWA-96, 97, 1568/97, 98, 99, 102, 103, 104, 105, 107, 108, 1563/108, 109, 110, 111, 112, 113, 136, 293, 294, 296, 337, 338, 339,343, 344, 345, 353, 355, 356, 357, 361, 360, 362, 1697/362, 1698/362, 363, 391, 394, 395, 443, 444, 445, 446, 447, 472, 474, 476, 477, 478, 479, 481, 482, 495, 496, 498, 499,507, 508, 510, 515, 516, 542, 543, 544, 545, 550, 551, 552, 559, 574, 574/1, 575, 575/1, 580, 634, 635, 1723/635, 636,1003, 1004,1009, 1011, 1012, 1013, 1022, 1075, 1078, 1845/1079,1087, 1088, 1092, 1099, 1100, 1103, 1104, 1107, 1108, 1112, 1113, 1114, 1115, 1157, 1161, 1180, 1184, 1185, 1186, 1188, 1189, 1606/559, 2004/559, 2005/559, 2006/559, 2007/559, 1679/574, 576, 576/1, 1662/580, 1617/551, 1721/545, 1635/542, 1671/515, 1614/510, 1803/510, 1721/635, 1722/635, 1663/507, 1612/508, 1801/508, 1608/495, 1609/496, 1800/496, 1651/482, 1963/478, 1964/478, 1965/478, 1960/477, 1961/477, 1962/477, 1631/476, 1630/474, 1805/474, 1806/474, 1661/498, 1799/498, 1610/443, 1616/472, 1807/472, 1667/394, 1782/394, 1808/394, 1668/395, 1664/391, 1605/353, 1809/353, 1599/356, 1594/344, 1607/362, 1696/362, 1699/362, 1722/362, 1772/362, 1777/362, 1725/363, 1602/357, 1689/357, 1690/357, 1597/343, 1593/338, 1810/338, 2016/338, 2017/338, 2018/338, 2020/337, 2021/337, 1591/293, 1811/293, 1918/293, 1919/293, 1595/339, 1576/97, 1577/97, 1578/97, 1579/97, 1580/97, 1584/103, 1815/103, 1586/107, 1587/108, 2141/1563, 2142/1563, 1627, 1924/1011, 1925/1011, 1619/1009, 1686/1009, 1687/1009, 1620/1022, 1598/1113, 1796/1113, 1913/1075, 1603/1003, 1795/1003, 1667/1103, 1718/1103, 1719/1103, 1629/1104, 1604/1078, 1691/1108, 1692/1108, 1601/1099, 1109, 1693/1109, 1542/1112, 1682/1112, 1683/1112, 1684/1112, 1622/1180, 1623/1185, 1624/1186, 1625/1188, 1720/1189NHNH	A	963000	-	Hectare

R - Residential, C - Commercial, A - Agriculture, I - Industrial, In - Institutional, Cx - Complex, Fh - Farm House, M - Mining, G - Godown, Rt - Resort, F - Firm

(Signature and name of Manager/Executive Engineer/ Incharge of the installation)

Contact details (Address /Mobile No./Phone No./Email)

To,

The Secretary

Central Electricity Authority

Sewa Bhawan, R.K. Puram

New Delhi-110066

Schedule VIII A

Minimum clearance in air above ground and across road surface of Highways or roads or railway corridors or navigational or non-navigational rivers for lowest conductor of an alternating current overhead lines, including service lines of nominal voltage system.

[See sub-regulation (1) of regulation (60)]

Nominal voltage of system	Clearance above ground			Clearance between conductor and road surface across Highway (m)	Clearance between conductor and rail level across Railway Corridor (m)		Clearance above HFL for River crossing	
	Across Street (m)	Along Street (m)	Elsewhere (m)		Normal OHE (where no double stack containers are to be run on railway tracks.)	High rise OHE for running of double stack containers on railway tracks.	Navigational river (m)	Non-navigatiional river (m)
Up to 650 V	5.80	5.50	4.60	U/G Cable	U/G Cable	U/G Cable	16.50	5.80
11 kV	6.50	5.80	4.60	U/G Cable	U/G Cable	U/G Cable	19.00	6.50
22 kV	6.50	5.80	5.20	U/G Cable	U/G Cable	U/G Cable	19.00	6.50
33 kV	6.50	5.80	5.20	11.60 or U/G Cable	U/G Cable	U/G Cable	19.00	6.50
66 kV	6.50	6.10	5.50	11.60 or U/G Cable	U/G Cable	U/G Cable	19.00	6.50
110 kV	6.50	6.10	6.10	11.60	15.56	17.56	19.00	6.50
132 kV	6.50	6.10	6.10	11.60	15.56	17.56	19.22	6.50
220 kV	7.02	7.02	7.02	12.52	16.46	18.46	20.10	7.02
400 kV	8.84	8.84	8.84	14.00	18.26	20.26	21.90	8.84
765 kV	18.00*	18.00*	18.00*	18.80	21.86	23.86	25.55	18.00
1200 kV	24.00*	24.00*	24.00*	30.00	25.46	27.46	29.90	24.00

For navigable rivers, clearances shall be fixed in relation to the tallest mast in consultation with the concerned navigational/port authorities.

* Higher clearance due to predominantly induction effects and time varying electric field (ICNIRP limit: 10kV/m for occupational exposure) at voltage exceeding 400 kV.

Schedule VIII B

The minimum clearance in air above ground and across road surface of Highways, or Minimum clearance between conductor and Rail Level or navigational or non-navigational rivers for lowest conductor of high voltage direct current overhead line of nominal voltage system [See sub-regulation (2) of regulation (60)]

Sl. No.	DC Voltage	Ground Clearance (m)	Clearance between conductor and road surface across Highway (m)	Minimum clearance between conductor and Rail Level (m)	Clearance above HFL for River crossing	
					Navigational River (m)	Non-navigatiional River (m)
1.	100 kV	6.50	11.25	#	19.00	6.50
2.	200 kV	7.30	12.05	#	19.90	7.30
3.	300 kV	8.50	13.25	#	20.90	8.50
4.	400 kV	9.40	14.15	#	21.90	9.40
5.	500 kV	12.50	17.25	21.23	22.90	12.50
7.	800 kV	18.00	22.75	25.74	25.90	18.00

1. Highway clearances required 4.75 m higher then ground clearances (considering the vehicle hight is 4.75, as mentioned in the Indian Road Congress documents, 1983).
2. # Railway clearances required 10% higher value than HVAC values (HVAC values are mentioned in Indian Railway document: IRSOD, 2004).
3. Navigational River clearances as mentioned in the Regulation of Inland Waterways Authority of India (Classification of Inland Waterways in India), Regulation, 2006.

CERTIFICATE

1 Undersigned has examined the proposal of the applicant for laying of **765kV D/C Merta (II) - Dausa overhead transmission line** and confirm that the all-standard conditions issued vide Ministry circular No: **RW/NH-33044/29/2015/S&R(R) dated 22.11.2016** has been followed.

2 It is certified that any other location of utility line would be extremely difficult and unreasonably costly and installation of utility line within ROW will not adversely affect the design, stability & traffic safety of the highway nor the likely future improvement such as widening of the carriageway, easing of curve etc.

3 I will ensure supervision of the work of laying of utility and ensure that the defects in road portion after laying of utility are corrected.

4 I will notify/forfeit the BG for claims for damages done/disruption in working, if any.

5 I will ensure that proposed permission is entered in the register of records.

6 The record of previous approval, if any has been considered and copy of same is enclosed with the proposal.

Rajasthan IV 4B Power Transmission Limited

CHECK - LIST

Guidelines for processing the proposal for laying of Utility line in the land along National Highways vested with NHAI/PWD/BRO.

General Information:

S. No.	Description	Details
1	Name and Address of the Applicant/Agency	Rajasthan IV 4B Power Transmission Limited & A-31, First Floor , Above the Bajrang Honda, Krishi Mandi Road, Opposite RICCO Industrial Area, Merta City, Rajasthan – 341510
2	National Highway No.	NH – 458
3	State	Rajasthan
4	Location	Ladnun - Mertacity National Highway-458, Near Village Idwa, Tehsil-Degana, District Nagaur
5	Chainage in km	99 - 100
6	Length in m	45.4 mtr
7	Width of available ROW in both side	33.5 mtr (each side from the center of NH) (= total 67 mtr)
8	Side of National Highway (left or right side of NH towards increasing chainage/Km direction)	Both
9	Name of Highway Authority of NHAI/PWD/BRO	PWD
10	Highway Administration address	PWD, NH Division, Ajmer

Rajasthan IV 4B Power Transmission Limited

CERTIFICATE

The details of the overhead 765kV D/C Merta (II) - Dausa Transmission Line crossing with NH 458 is as below:

Sl. No.	Description	Details
1	Name of the Power/Transmission line	765kV D/C Merta (II) - Dausa Transmission Line
2	Name of National Highway the Power/Transmission Line is crossing	NH - 458 (Ladnun - Mertacity)
3	State	Rajasthan
4	Crossing Location	Near Village Idwa, Tehsil-Degan, District- Nagaur
5	Width of available ROW on both sides of the crossing point (CP)	From CP towards AP 20 tower – 125 mtr From CP towards AP 21 tower – 105 mtr
6	Horizontal distance of Power/Transmission Line towers from the crossing point (CP)	From CP to AP 20 tower – 120 mtr From CP to AP 21 tower – 100 mtr
7	Vertical distance of Power/Transmission Line from crossing point (CP)	31.99 mtr

It is certified that the towers (AP 20 and AP 21) are located outside the ROW of the National Highway (NH-458) and the vertical clearance available (31.99 mtr) is as per the IRC manual.

Rajasthan IV 4B Power Transmission Limited

Annexure-II

CERTIFICATE

1 Undersigned has examined the proposal of the applicant for laying of **765kV D/C Merta (II) - Dausa overhead transmission line** and confirm that all the standard conditions issued vide Ministry Circular No. **RW/NH-33044/29/2015/S&R(R) dated 22.11.2016** & and the subsequent amendments has been followed.

2 It is certified that any other location of utility line would be extremely difficult and unreasonable costly and installation of utility line within ROW will not adversely affect the design, stability & traffic safety of the highway nor the likely future improvement such as widening of the carriageway, easing of curve etc.

3 I will ensure supervision of the work of laying of utility and ensure that the defects in road portion after laying of utility are corrected.

4 I will notify/forfeit the BG for claims for damages done/disruption in working, if any.

5 I will ensure that proposed permission in entered the register of records.

6 The record of previous approval, if any has been considered and copy of same is enclosed with the proposal.

Transaction Details: 0206250015116

Depositor's Details

Name:	M/S. RAJASTHAN IV 4B POWER TRANSMISSION LIMITED		
Address Line 1:	A-31, 1ST FLOOR, ABOVE BAJRANG HONDA,KRISHI MANDI ROAD,	Address Line 1:	OPPOSITE RICCO INDUSTRIAL ARAEA, MERTA CITY
City		District :	NAGAUR
State :	RAJASTHAN	Country	
Pincode:	341510	Email:	rivbptl@gmail.com
Mobile No.:	8463867781		

Payment Details

Payment status	Success
Bank Name	
Aggregator Name	ICICI
Channel Name	Visa Credit Card
Response Bank Name	
Response PayMode	

Documents Required

Transaction Receipt

Deposit Details

Purpose	Remarks	Amount	Ministry	DDO Name	PAO Name	Payment Frequency / Period
PROCESSING FEE FOR PERMIT TO ACCESS TO NATIONAL HIGHWAYS	Application Details-20250531/1/1/37910/55906 Processing Fees	10000.00	ROAD TRANSPORT & HIGHWAYS	SE, Civil	PAO(NH),Jaipur	No Restriction,-0

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

राजस्थान RAJASTHAN

CC 038609

उप कोष, मेरता सिटी

22 APR 2025

AGREEMENT REGARDING GRANTING OF RIGHT OF WAY PERMISSIONS FOR LAYING UTILITY SERVICES ON NATIONAL HIGHWAY

Agreement to lay 765kV D/C Merta (II) - Dausa Transmission Line overhead high-tension transmission over National Highway-458 at KM 99 - KM 100.

This Agreement made this..... Day of..... (Month) of..... (Year) between **Public Works Department, National Highway Division, Ajmer** acting in his executive capacity through.....(Hereinafter referred to as the "Authority" which expression shall unless excluded by or repugnant to the context, include his successors in office and assigns) on the one part, and **M/s Rajasthan IV 4B Power Transmission Limited**, a company registered under the Companies Act, 1956 and having its Registered Office at **A-31, 1st Floor , Above the Bajrang Honda, Krishi Mandi Road, Opposite RICO Industrial Area, Merta City, Rajasthan - 341510** (hereinafter called the "Licensee") which expression shall unless excluded by repugnant to the context, include his successors/administrator assignees on the second part.

Whereas the Authority is responsible, inter-alia, for development and maintenance of lands at **Km 99 - Km 100 NH No. 458 ROW.**

Whereas the Licensee proposes to lay **765kV D/C Merta (II) - Dausa Transmission Line** for overhead conductors across **NH-458**. Referred to as utility services in subsequent paras.

Whereas the Licensee has applied to the Authority for permission to lay utility services at **KM 99 - KM 100 of route Ladnun - Mertacity NH-458.**

And whereas the Authority has agreed to grant such permission for way leave on the NH ROW as per terms and conditions hereinafter mentioned.

Now this agreement witnessed that in consideration of the conditions hereinafter contained and on the part of the Licensees to be observed and performed, the Authority hereby grants to the Licensee permission to lay utility services as per the approved drawing attached hereto subject to the following conditions, namely:

1. ROW permissions are only enabling in nature. The purpose of extending the way leave facility on the National Highway ROW is not for enhancing the scope or activity of a utility service provider, either by content or by intent. Further, enforceability of the permission so granted shall be restricted only to the extent of provisions/scope of activities defined in the license agreement & for the purpose for which it is granted.
2. No Licensee shall claim exclusive right on the ROW and any subsequent user will be permitted to use the ROW, either above or below, or by the side of the utilities laid by the first user, subject to technical requirements being fulfilled. Decision of the Authority in relation to fulfilment of technical requirements shall be final and binding on all concerned parties. In case any **disruption/damage** is caused to any existing user by the subsequent user, the Authority shall not be held accountable or liable in any manner.
3. The Licensee shall be responsible for undertaking all activities including, but not limited to site identification, survey, design, engineering, arranging finance, project management, obtaining regulatory approvals & necessary clearances, supply of equipment, material, construction, erection, testing and commissioning, maintenance and operation and all other activities essential or required for efficient functioning of their own utility/ industrial infrastructure facilities.
4. The Licensee shall pay license fees @ Rs ...../sq m/month to the Authority. The License fee shall become payable from the date of handing over of ROW land to the Licensee, for laying of utilities/cables/conduits/pipelines for infrastructure service provider. As regards Tariff and Terms and conditions for providing common utility ducts along National Highways, there shall be a separate agreement regime.
5. Fee shall have to be paid in advance for the period for which permission is granted for entering into a license agreement. In case of renewal, rate prevailing at the time of renewal shall be charged. Delay in deposition of fee shall attract interest @ 15% per annum compounded annually.
6. Present policy of the MoRT&H is to provide a 2.00 m wide utility corridor on either side of the extreme edge of ROW. In cases where utility ducts with sufficient space are already available along NH, the utility services shall be laid in such ducts subject to technical requirements being fulfilled.
7. The utility services shall be laid at the edge of the ROW. In case of restricted width of ROW, which may be adequate only to accommodate the carriageway, central verge, shoulders, slopes of embankment, drains, other road side furniture etc; the utility services shall be laid beyond the toe line of the embankments and clear of the drain.
8. The Licensee shall make his own arrangements for crossing of cross drainage structures, river, etc. below the bed. In case, this is not feasible, the utility services shall be carried outside the railings/parapets and the bridge superstructure. The fixing and supporting arrangement withal details shall be required to be approved in advance from the concerned Highway Administration. Additional cost on account of

Rajasthan IV-B Power Transmission Limited

fixing and supporting arrangement as assessed by the Authority shall be payable by the Licensee.

9. In exceptional cases, where ROW is restricted the utility services can be allowed beneath the carriageway of service road, if available, subject to the condition that the utility services be laid in concrete ducts, which will be designed to carry traffic on top. The width of the duct shall not be less than one lane. In such cases, it also needs to ensure that maintenance of the utility services shall not interfere with the safe and smooth flow of traffic. The cost of operation and maintenance will have to be borne by the Licensee.
10. It is to be ensured that at no time there is interference with the drainage of the road land and maintenance of the National Highways. Towards this, the top of the utility services shall be at least 0.6 meter below the ground level. However, any structure above ground shall be aesthetically provided for / landscaped with required safety measures as directed by the concerned Authority.
11. The utility services shall be permitted to cross the National Highway either through structures or conduits specially built for that purpose. The casing / conduit pipe should, as minimum, extend from drain in drain in cuts and toe of slope to toe of slope in the fills and shall be designed in accordance with the provision of IRC and executed following the Specifications of the Ministry.
12. Existing drainage structures shall not be allowed to carry the lines across.
13. The top of the casing/conduit pipe containing the utility services to cross the road shall be at least 1.2m below the top of the sub grade or the existing ground level whichever is lower, subject to being at lease 0.3m below the drain inverts. A typical sketch showing the clearances is given in Attachment-I.
14. The utility services shall cross the National Highway preferably on a line normal to it or as nearly so as practicable.
15. The casing/conduit pipe for crossing the road may be installed under the road embankment either by boring or digging a trench. Installation by boring method shall be preferred.
16. In case of trenching, the sides of the trench should be done as nearly vertical as possible. The trench width should be at least 30 cm. but not more than 60 cms wider than the outer diameter of the pipe. Filling of the trench shall conform to the specifications contained here-in-below or as supplied by the Highway Authority.

    a. Bedding shall be to a depth not less than 30 cm. It shall consist of granular material, free of lumps, clods and cobbles, and graded to yield a firm surface without sudden change in the bearing value. Unsuitable soil and rock edges should be excavated and replaced by selected material.
    b. The backfilling shall be completed in two stages
       (i) Side-fill to the level of the top of the pipe
       (ii) Overfill to the bottom of the road crust
    c. The side fill shall consist of granular material laid in 15 cm. Layers each consolidated by mechanical tamping and controlled addition of moisture to 95% of the Proctor's Density. Overfill shall be compacted to the same density as the material that had been removed. Consolidation by saturation or ponding will not be permitted.

d. The road crust shall be built to the same strength as the existing crust on either side of the trench or to thickness and specifications stipulated by the Highway Authority.

17. The Licensee shall ensure making good the excavated trench for laying utility service by proper filling and compaction, so as to restore the land into the same condition as it was before digging the trench, clearing debris/loose earth produced due to execution of trenching at least 50m away from the edge of the right of way.

18. All required restoration works subsequent to laying of the cable shall be required to be undertaken by the Licensee at its cost either by itself or through its authorized representative in consultation with the Authority as per predetermined time schedule and quality standards.

19. Prior to commencement of any work on the ground, a performance Bank Guarantee @ Rs. ..... per route meter / Rs ..... per sq. m with a validity of one year initially (extendable if required till satisfactory completion of work) shall have to be furnished by the Licensee to the Authority / its designated agency as a security against improper restoration of ground in terms of filling / unsatisfactory compaction, damages caused to other underground installations / utility services & Interference, interruption, disruption or failure caused thereof to any services etc. In case of the Licensee failing to discharge the obligation of making good of the excavated trench/other restoration work, the Authority shall have a right to make good the damages caused by excavation at the cost of the Licensee and recover the amount by forfeiture of the Bank Guarantee.

20. In case, the Performance Bank Guarantee is invoked as mentioned above, the Licensee shall be required to replenish and reinstate the required Performance Bank Guarantee within one month of such invoking. In case the work contemplated herein is not completed to the satisfaction of the Authority, which has granted the permission, within a period of 11 months from the date of issue or the Bank Guarantee, the Licensee shall either furnish a fresh from the date or issue the Bank Guarantee, the Licensee shall either furnish a fresh from the date or issue the Bank Guarantee for a further period of one year. Notwithstanding this, the guarantee or extend the guarantee for a further period of one year. Notwithstanding this, the Licensee shall be liable to pay full compensation to the aggrieved Authority / its designated agency for any damage sustained by them by reason of the exercise of the ROW facility.

21. The Licensee shall shift the utility services within 90 days (or as specified by the respective Authority) from the date of issue of the notice by the concerned Authority to shift/relocate the utility services, in case it is so required for the purpose of improvement/widening of the road/route/highway or construction of flyover/bridge and restore the road/land to its original condition at his own cost and risk.

22. The Licensee shall be responsible to ascertain from the respective agency in co-ordination with Authority, regarding the location of other utilities / underground installations / facilities etc. The Licensee shall ensure the safety and security of already existing underground installations/utilities/facilities etc. before commencement of the excavation/using the existing cable ducts. The licensee shall procure insurance from a reputed insurance company against damages to already existing underground installations/utilities/facilities etc.

Rajasthan RV 4B Power Transmission Limited

23. The Licensee shall be solely responsible/liable for full compensation/indemnification of concerned agency / aggrieved Authority for any direct, indirect or consequential damage caused to them / claims or replacements sought for, at the cost and risk of the Licensee. The concerned agency in co-ordination with Authority shall also have a right make good such damages / recover the claims by forfeiture of Bank Guarantee.

24. If the Licensee fails to comply with any condition to the satisfaction of the Authority, the same shall be executed by the Authority at the cost and risk of the Licensee.

25. Grant of License is subject to the Licensee satisfying (a) minimum disruption of traffic and (b) no damage to the highways. As far as possible, the Licensee should avoid cutting of the road for crossing highway, and other roads and try to carry out the work by trenchless technology. In case any damage is caused to the road pavement in this process, the Licensee will be required to restore the road to the original condition at its cost. If due to unavoidable reason the road needs to be cut for crossing of laying utility services, the Licensee has to execute the restoration work in a time bound manner at its cost either by itself or through its authorized representative in consultation with the Authority as per predetermined time schedule and quality standards. In case of the Licensee failing to discharge the obligation of making good of the excavated trench/other restoration work, the Authority shall have a right to make good the damages caused by excavation, at the cost of the Licensee and recover the amount by forfeiture or the Bank Guarantee.

26. The Licensee shall inform / give a notice to the concerned agency designated by the Authority at least 15 days in advance with route details prior to digging trenches, for fresh or maintenance/repair works. A separate performance Bank Guarantee for maintenance/repair works shall have to be furnished by the Licensee.

27. Each day, the extent of digging the trenches should be strictly regulated so that utility services is laid and trenches filled up before the close of the work that day. Filling should be completed to the satisfaction of the concerned agency designated by the Authority.

28. The licensee shall indemnify the concerned agency in co-ordination with Authority, against all damages and claims, if any due to the digging of trenches for laying cables/ducts.

29. The permission for laying utility services is granted maximum for 5 years at a time, which can thereafter be considered for renewal. On payment of additional fee at the time of renewal. The permission shall automatically be renewed, unless defaults exist. In case of renewal, rate of prevailing at the time of renewal shall be charged. Delay in deposition of fee shall attract interest @ 15% per annum compounded annually.

30. The permission shall be valid only for the period it is issued, and the fee deposited. However, the Authority also has a right to terminate the permission or to extend the period of Agreement.

Rajasthan V 48 Power Transmission Limited

31. That the Licensee shall not undertake any work of shifting, repairs, or alternations to the utility services without prior written permission of the concerned agency in co-ordination with the Authority.

32. The permission granted shall not in any way be deemed to convey to the Licensee any ownership right or any interest in route/road/highway land/property, other than what is herein expressly granted. No use of NH ROW will be permitted for any purpose other than that specified in the Agreement.

33. During the subsistence of this Agreement, the utility services located in highway land/property shall be deemed to have been constructed and continued only by the consent and permission of the Authority so that the right of the Licensee to the use thereof shall not become absolute and indefeasible by lapse of time.

34. The Licensee shall bear the Stamp Duty charged on this Agreement.

35. Three copies of 'as laid drawing' of utilities (hard and soft copies) with geo-tagged photographs and geo-tagged video recordings of laying of cables in the trench (with respect to the NH) and after complete restoration shall be submitted to the Authority for verification and record within a month of completion of works.

36. The Licensee shall allow free access to the Site at all times to the authorized representatives of Authority to inspect the Project Facilities and to investigate any matter within their Authority, and upon reasonable notice, shall provide reasonable assistance necessary to carry out their respective duties and functions.

37. The utility services shall not be made operational by the Licensee unless a completion certificate to the effect that the utility services has been laid in accordance with the approved specifications and drawings and the trenches have been filled up to the satisfaction of the concerned agency in co-ordination with the Authority has been obtained. Notwithstanding anything contained herein, this Agreement may be cancelled at any time by Authority for breach of any condition of the same and the Licensee shall neither be entitled to any compensation for any loss caused to it by such cancellation not shall it be absolved from any liability already incurred.

38. The Licensee shall ensure adherence to relevant Indian standards and follow best industry practices, methods and standards for the purpose of ensuring safe, efficient and economic design, construction, commissioning, operation, repair and maintenance of any part of the utility lines/industrial infrastructure facilities and which practices, methods and standards shall be adjusted as necessary, to take account of:

a. Operation, repair and maintenance guidelines given by the manufacturers.
b. The requirements of Law.
c. The physical conditions at the Site. And
d. The safety of operating personnel and human beings.

Rajasthan IV 48 Power Transmission Limited

39. The Licensee shall have to provide safety measures like barricading, danger lighting and other necessary caution boards while executing the work.

40. While laying utility services, at least one lane of road shall be kept open to traffic at all times. In case of single lane roads, a diversion shall be constructed. If any traffic diversion works are found necessary during the working period such diversion shall be provided at the cost of Licensee.

41. After the termination/expiry of the agreement, the Licensee shall remove the utility services within 90 days and the site shall be brought back to the original condition failing which the Licensee will lose the right to remove the utility services. However, before taking up the work of removal of utility services the Licensee shall furnish a Bank Guarantee to the Authority for a period of one year for an amount assessed by the Authority as a security for making good the excavated trench by proper filling and compaction, clearing debris, loose earth produced due to excavation of trenching at least 50m away from the edge of the ROW.

42. Any disputes in interpretation of the terms and conditions of this Agreement or their implementation shall be referred to the redress mechanism prevailing in the Ministry and the decision of the redress mechanism shall be final and binding on all.

43. For PPP Projects, in case of any financial loss incurred by the respective project concessionaires due to such laying/shifting of utility services by the Licensee, Compensation for the same shall be required to be borne by the Licensee in mutual agreement with the respective project concessionaires. MoRT&H/ NHAI/ implementing authorities for the project shall not be liable to the concessionaire in any way in this regard.

This agreement has been made in duplicate, each on a Stamp Paper. Each party to this Agreement has retained one stamped copy each.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE CAUSED THIS AGREEMENT TO BE EXECUTED THROUGH THEIR RESPECTIVE AUTHORISED REPRESENTATIVES THE DAY AND THE YEAR FIRST ABOVE WRITTEN.

SIGNED SEALED AND DELIVERED FOR AND ON BEHALF OF THE AUTHORITY.

BY SHRI_____
(Signature, name & address with stamp)
CHANDRASHEKHAR PANDEY

Rajasthan IV 4B Power Transmission Limited

SIGNED ON BEHALF OF M/S RAJASTHAN IV 4B POWER TRANSMISSION LIMITED (LICENSEE)

BY SHRI_____
(Signature, name & address with stamp)

HOLDER OF GENERAL POWER OF ATTORNEY DATED _____
EXECUTED IN ACCORDANCE WITH RESOLUTION NO. _____
DATED _____ **PASSED BY THE BOARD OF DIRECTORS IN THE MEETING HELD ON** _____.

IN THE PRESENCE OF (WITNESSES):

1. Hanaranjan Gouda M.Gouda

2. Bijender Kumar

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

राजस्थान RAJASTHAN

CC 038610

Undertaking

It is to undertake that the work execution of **765kV D/C Merta (II) - Dausa Transmission line (overhead high tension Transmission line) at 99 km – 100 km near Idwa Village, Tehsil-Degana, District-Nagaur in the state of Rajasthan** being to be carried out as per enclosed profile and drawing. Following circular/standards with the terms and condition specified by the PWD are being strictly followed by the RAJASTHAN IV 4B POWER TRANSMISSION LIMITED for execution of this work.

10.1 We undertake not to damage to other utility, if damaged then to pay the losses either to PWD or to the concerned agency.

10.2 We undertake for renewal of Bank Guarantee as and when asked by PWD/MoRTH.

10.3 We undertake, for conforming standard condition of Ministry circulars and PWD guidelines will be followed.

10.4 We undertake shifting of EHV line as and when required by PWD at our own cost.

10.5 We undertake indemnity against all damages and claims.

10.6 We undertake traffic movement during crossing of EHV line to be managed by applicant.

10.7 We undertake that any claim is raised by the Concessionaire / contractor then the same will be paid by the applicant.

10.8 We undertake to obtain various safety clearances from the representative authorities such

The overhead line shall comply with the requirements of the Indian Electricity Act and Rules made there under and the regulations or specifications as laid down by railways or railway electrification authorities, local governing bodies, defense authorities and power and telecommunications coordination committee, wherever applicable.

Further to above RAJASTHAN IV 4B POWER TRANSMISSION LIMITED shall take all necessary safety precaution during the execution the above work without any damage to NH or its user.

Date:

Signature

Estimate for laying 765kV D/C Merta (II) - Dausa Transmission Line across NH-458 at km 99 - km 100 (Iadnun - MertaCity)

Sr. No.	Village Name	Utility Length (mtr)	Utility Dia (mtr)	Utilized NH Area Land (sqm)	Prevailing Circle Rate (Per Sqm.)	Total Amount (Rs. per annum)
		A1	B1	C1=A1*B1	D1	E1=C1*D1*10%
1	IDWA	30	29.63	888.90	7100	6,31,119.00

License Fee for 5 Years with increment of 06% every year)	1st Year	6,31,119.00
	2nd Year	6,68,986.14
	3rd Year	7,09,125.31
	4th Year	7,51,672.83
	5th Year	7,96,773.20
Total License Fee for 5 Years		**35,57,676.47**

Amount Calculation of Performance BG laying 765kV D/C Merta (II) - Dausa Transmission Line across NH-458 at km 99 - km 100 (Ladnun - Mertacity)

Sr No.	Category of Utility	Chainage	Length (mtr)	Rate in per Route Mtr	BG Amount based on per Route Mtr	Total BG Value	Remarks
			A2	B2	C2=A2*B2	D2=C2*B1	
1	Public Utility	99 - 100	30	100.00	3,000.00	88,890.00	Rates taken as per Ministry's Guidelines letter No. RW/NH-330044/29/2015/S&R(R) dated 22.11.2016

Note: As per Clause 6, as the crossing of National Highway is overhead in nature, the rate in per route meter is considered as Rs. 100.

Rajasthan IV 48 Power Transmission Limited
S. Pandey

Rajasthan IV 4B Power Transmission Limited

Line Name : 765KV D/C Merta II to Dausa Transmission Line

Tower Schedule For The NH Overhead Crossing Section

SL NO.	AP. No.	Type of Tower	Extn.	Raise Chimany	Angle of Deviation (Deg)	Sectional Length (M.)	Span (M)	Cum. Span (M)	Wind Span (M)	Wt. Span (Cold)			Wt. Span (Hot)			Adjacent Span			UTM Coordinate		Elevation	Remarks
										Left	Right	Total	Left	Right	Total	Left	Right	Total	X - Coordinate	Y - Coordinate		
1	19/1	DA+1.5	1.5	0				12338	419	213	202	415	215	202	417	434	405	839	427356.22	2966671.63	330.18	
							405															
2	AP20	DB1+0	0	0	6° 30' 36"L			12742	323	203	9	212	203	44	247	405	241	645	427751.13	2966583.76	331.78	
							241															N.H-458 (LADNUN-MERTA)
3	AP21	DC2+12	12	0	29° 51' 0"R	263		12983	252	232	153	385	197	146	343	241	263	503	427990.69	2966558.42	332.31	
							263															
4	AP22	DD45+9	9	0	36° 30' 0"L	2833		13246	354	109	267	376	116	253	369	263	445	707	428203.41	2966404.50	332.61	

Rajasthan IV 4B Power Transmission Limited

Checked By

Rajasthan IV 4B Power Transmission Limited

Recommended By

Rajasthan IV 4B Power Transmission Limited

Approved By

ur map.

AP20 (DB1+0)

NH-458

LADNUN

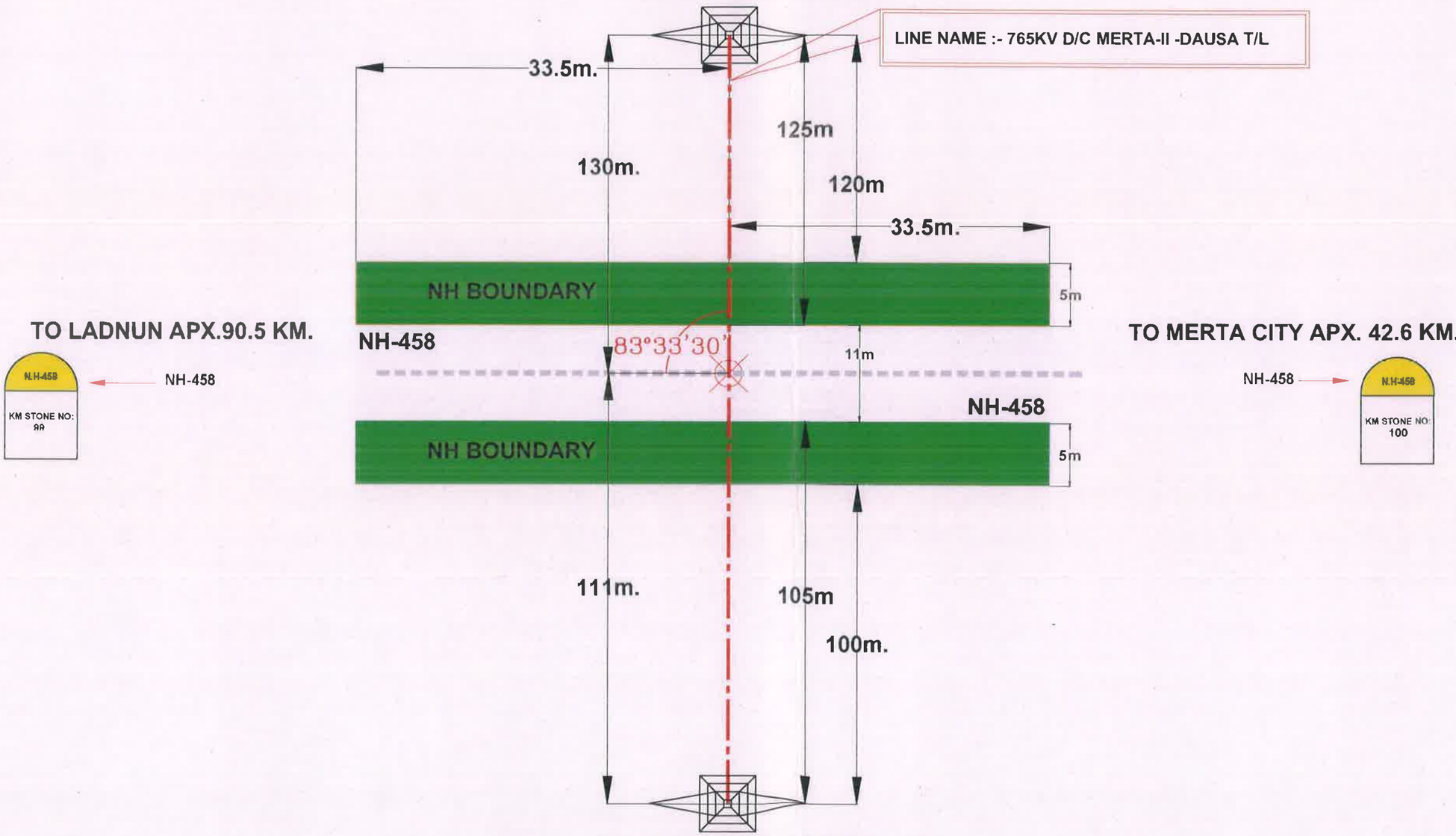
MERTA

AP21 (DC2+12)

OWNER:- RAJASTHAN IV 4B POWER TRANSMISSION LIMITED
EPC CONTRACTOR:- DINESHCHANDRA RENEWABLES PVT LTD
LINE:- 765KV D/C MERTA-II -DAUSA T/L

CROSSING DETAILS FOR LADNUN TO MERTA CITY NATIONAL HIGHWAY NO.- 458 (SECTION LENGTH - 241 METRE)

AP-20/0 (DB1+0), HEIGHT OF TOWER 31.76 mtr.
LT 6° 30' 36", NEARST VILL- IDAWA
E 427751.13 N 2966583.76,RL: 331.78M



TO LADNUN APX.90.5 KM.

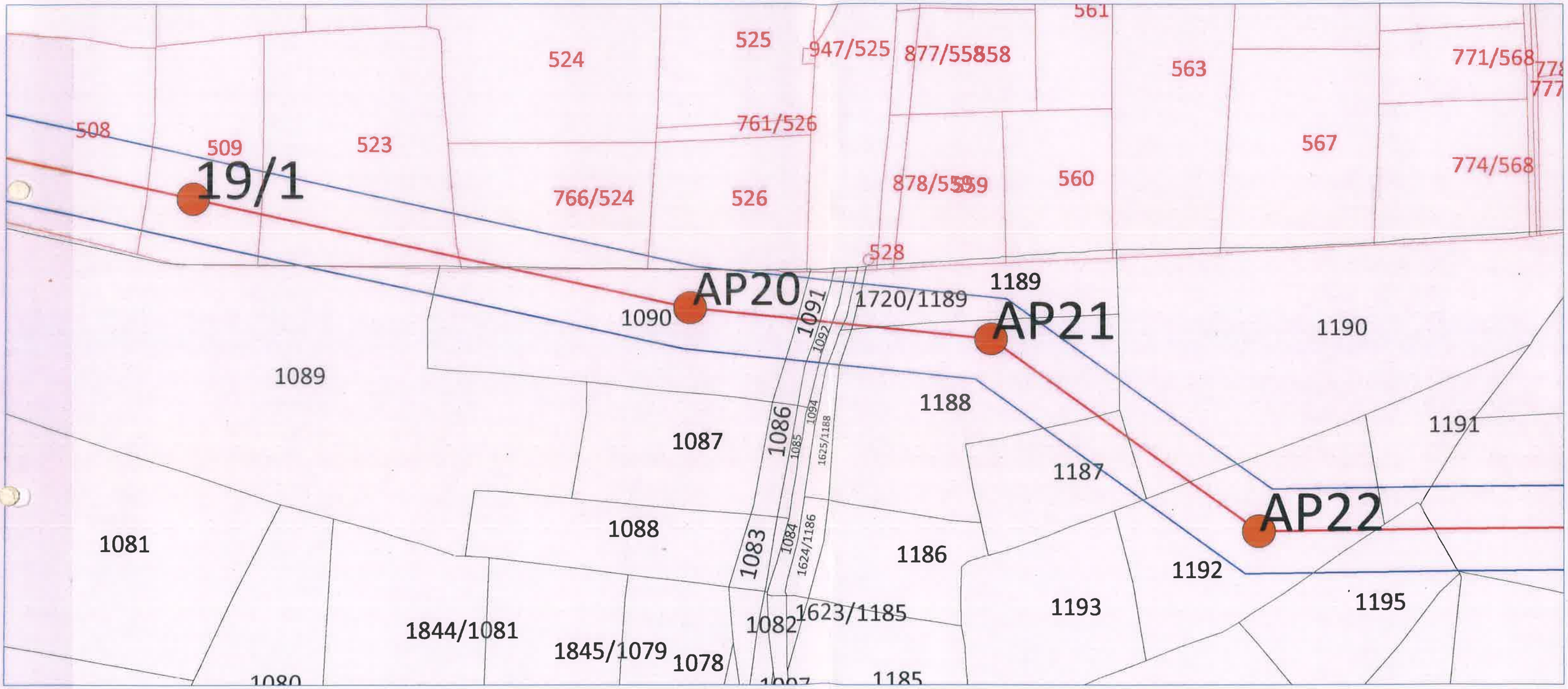
NH-458

TO MERTA CITY APX. 42.6 KM.

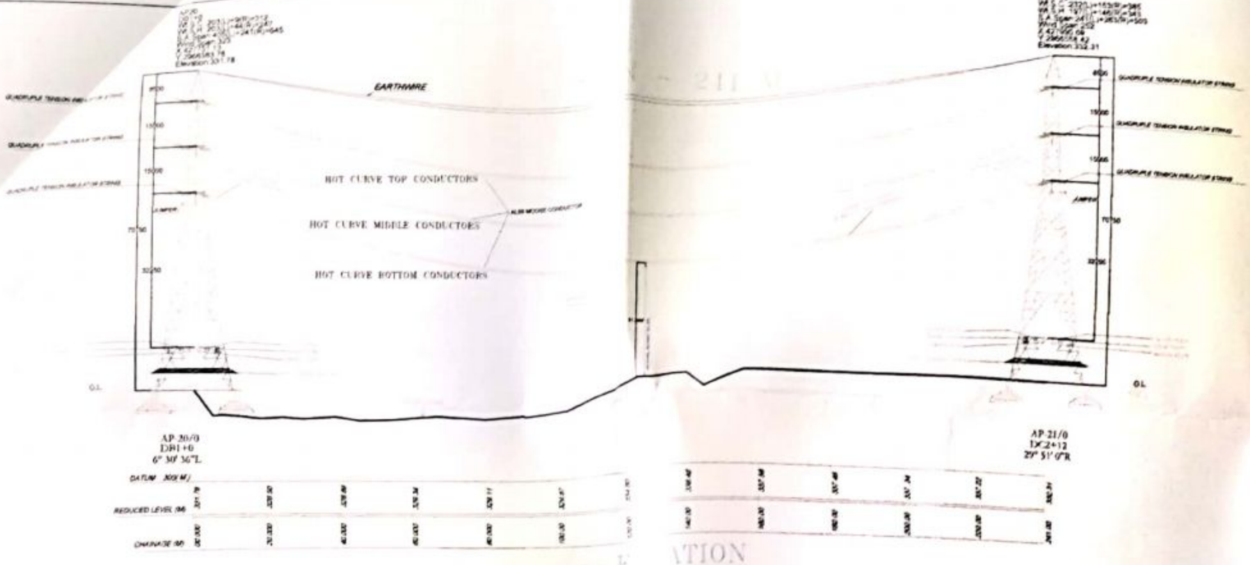
NH-458

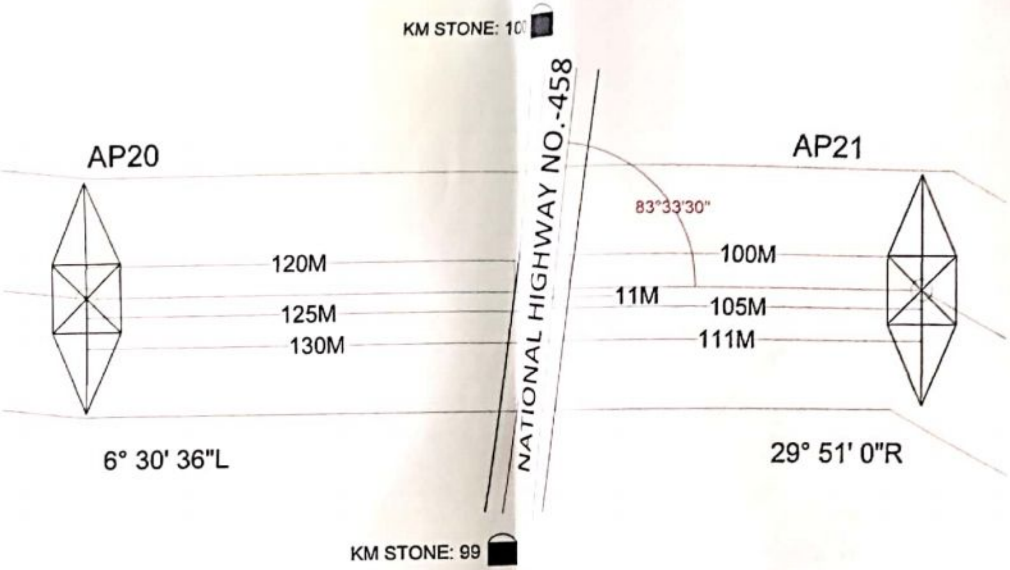
AP-21/0 (DC2+12), HEIGHT OF TOWER 43.76 mtr.
RT 29° 51' 0" , NEARST VILL- IDAWA
E 427990.69 N 2966558.42, RL: 332.31M

Rajasthan IV AS Power Transmission Limited



Rajasthan IV 48 Power Transmission Limited

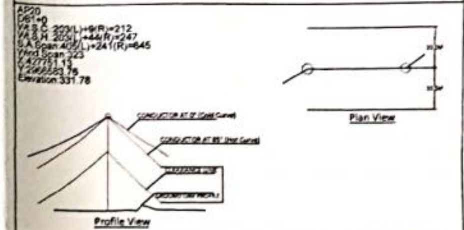




CHARACTERISTIC OF WIRES

	CONDUCTOR	OPGW
NAME	AL59 ZEBRA	OPGW
DIAMETER (mm)	27.72	12.00
UNIT WEIGHT(Kg/m)	1.254	0.456
SECTIONAL AREA (Sq.mm)	454.0	77.40
Modulus of Elasticity (Kg/sq.mm)	5608.0	14378.1
Ultimate Tensile Strength (Kg)	11013.00	9351.00
Coeff of Linear Expansion (/°C)	2.30E-05	1.37E-05

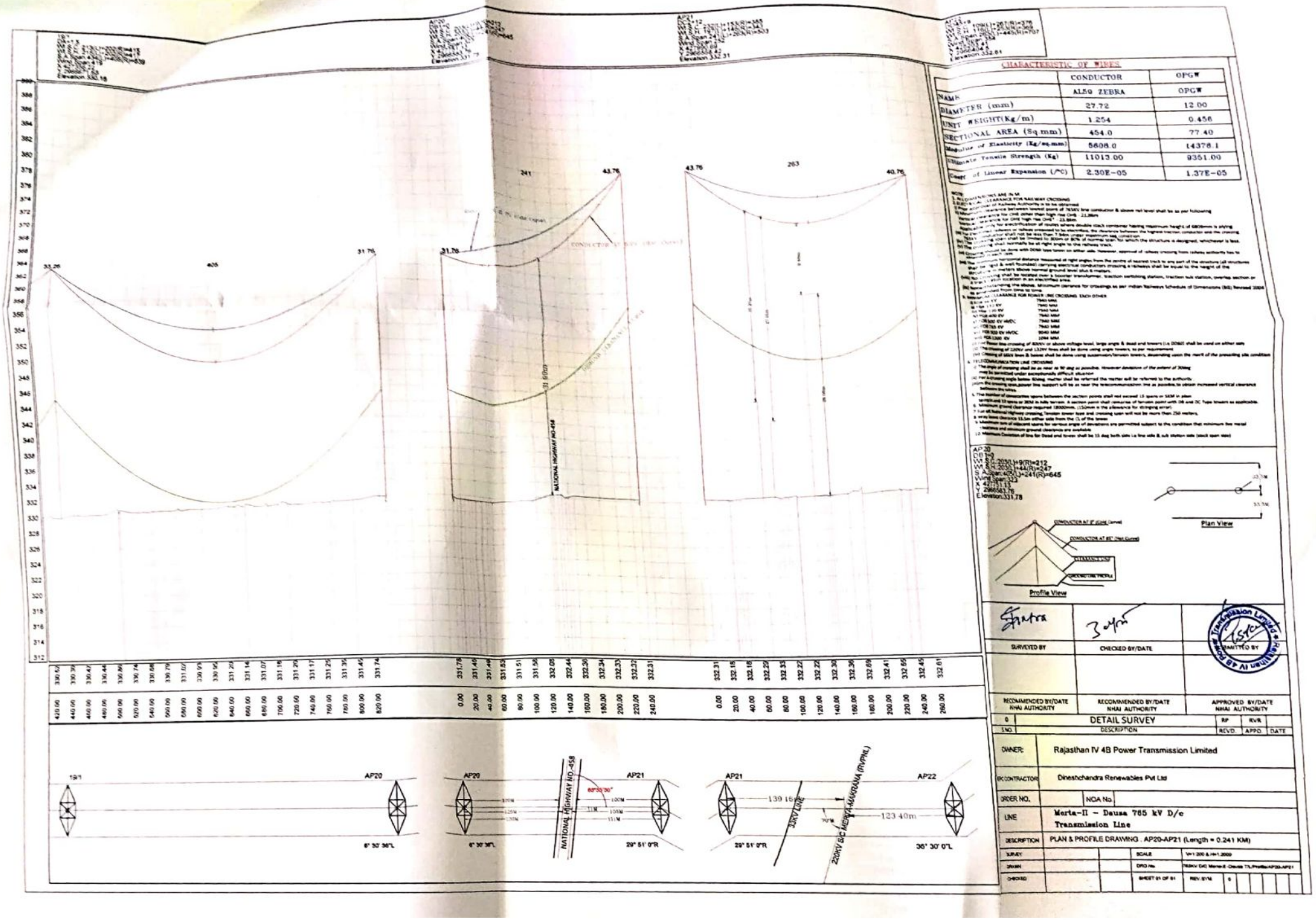
NOTE
1. ALL DIMENSIONS ARE IN M
2. ELECTRICAL CLEARANCE FOR RAILWAY CROSSING
i) Prior approval of Railway Authority is to be obtained
ii) Minimum clearance between lowest point of 765KV line conductor & above rail level shall be as per following
vertical clearance for OHE other than high rise OHE - 21.86m
vertical clearance for OHE high rise OHE* - 23.86m



SURVEYED BY	CHECKED BY/DATE	SUBMITTED BY
RECOMMENDED BY/DATE NHAI AUTHORITY	RECOMMENDED BY/DATE NHAI AUTHORITY	APPROVED BY/DATE NHAI AUTHORITY

S.NO.	DESCRIPTION	REVD.	APPD.	DATE
0	DETAIL SURVEY	RP	RVR	

OWNER:	Rajasthan IV 4B Power Transmission Limited
EPC CONTRACTOR	Dineshchandra Renewables Pvt Ltd
ORDER NO.	NOA No
LINE	Merta-II - Dausa 765 kV D/c Transmission Line
DESCRIPTION	PLAN & PROFILE DRAWING : AP20-AP21 (Length = 0.241 KM)
SURVEY	SCALE: V=1:200 & H=1:2000
DRAWN	DRG No. 765KV D/C Merta-II -Dausa T/L/Profile/AP20-AP21
CHECKED	SHEET 01 OF 01 REV.SYM 0



DINESHCHANDRA RENEWABLES PVT. LTD.

STANDARD OPERATING PROCEDURE (SOP)
FOR
OPEN CAST FOUNDATION

Document Release Authorisation: -

	Prepared by	Reviewed by	Approved by
Date	12/03/2025	13/03/2025	13/03/2025
Name	Somesh Sehrawat	Radhekant Mishra	Harshith Vadnala
Department	QA/QC	QA/QC	QA/QC Head

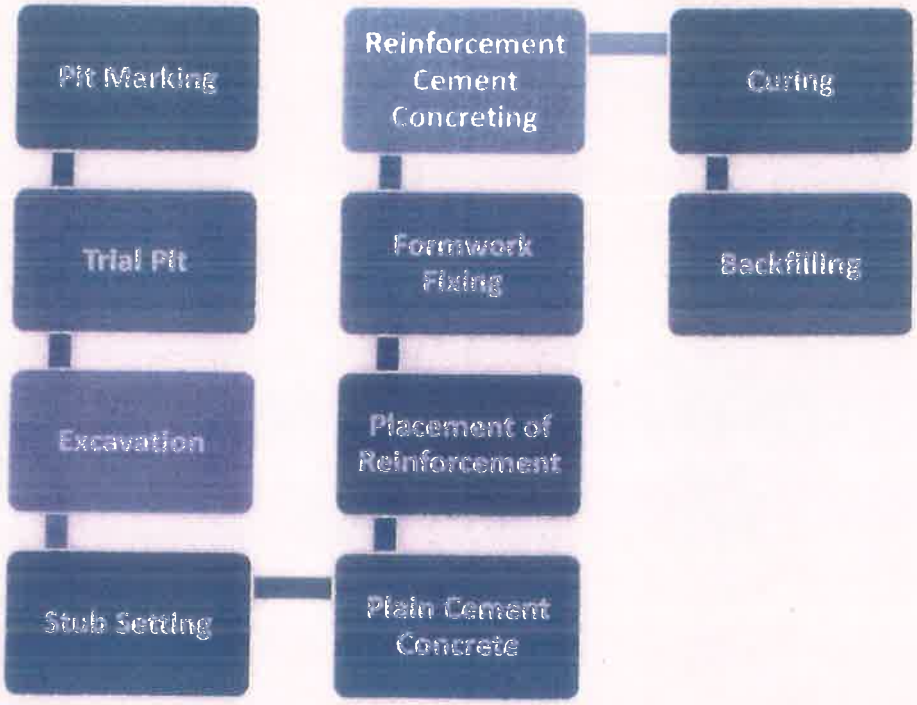
Table of Contents

1. Introduction

This methodology explains detailed arrangement required for execution of transmission tower foundation by open cast method.

2. Work Sequence

The work sequence for executing an open cast foundation will be as follows.



3. Pit Marking

1. Pit Marking Dimensions shall be calculated based on the dimensions given in the foundation drawing or excavation plan.
2. Marking will be given in reference to the line pegs and bisection pegs aligned with the center pegs as per the approved Profile and class of foundation.
3. Dimension of pit to be marked the by measurement tape on the ground as per marking diagram and covered by lime powder (Marking is to be done with lime powder as per standard practice) for each pit.
4. The pit size in case of open cast foundation shall be determined after allowing a margin of 150 mm all-round the base pad size. However, no margin is necessary in the case of foundations having undercuts.
5. After Pit Marking, dimensions of one pit to another pit end and diagonal of pit corner to be checked and documented.

Rajasthan Rajya Vidyut Prasaran Nigam Limited

4. Trial Pit

1. An 1x1 Mtr area to be identified near proposed location of each leg of the tower and excavator to be placed in suitable manner to excavate the trial pit till complete depth of the foundation as per construction drawing.
2. After completion of the trial pit excavation, necessary barricading arrangements to be done in order to prevent fall of any object or livestock into it.
3. The trial pit is to be left undisturbed till at least 24 hours and then to be checked for soil strata and sub soil water level, if any and recorded in the relevant checklist.
4. Details recorded as above to be submitted to the competent authority with proposed foundation type and approval to be accorded by such authority in due manner.

5. Excavation

1. Pit marking to be cross checked with the construction drawing for necessary accuracy.
2. Depending upon the sub-soil water table, setup and run sufficient dewatering arrangement to ensure that there should be no seepage during excavation till the depth of the foundation.
3. Excavator to be placed near the pit marking under applicable safety guidelines in such a manner that excavated soil can be dumped outside the construction area i.e. radially outward of the pit under excavation.
4. Sufficient space to be identified adjacent to the pit and cleared beforehand for dumping of the excavated soil.
5. While excavating, the earth is to be cut in tapered manner or in steps as per the soil conditions at site to avoid any kind of mishap caused by collapsing of the pit sides during the course of excavation and foundation work.
6. Continue the excavation till complete depth of the foundation excluding last 100 MM approx. The last 100 MM excavation is to be done manually in order to maintain correct depth of the foundation. This is to be ensured that there should be no loose earth in the pit.
7. In case of any excess excavation, the same shall be filled with plain cement concrete of ratio 1:3:6 upto the level of designed depth of the foundation.
8. After completion of excavation, necessary barricading arrangements to be done in order to prevent fall of any object or livestock into it.

6. Stub Setting

6.1 With Stub Setting Template: -

1. Excavated soil shall be kept 2000 MM away from the pit and there should not be any excavated soil in between adjoining pits.

2. All the parts of template shall be assembled on ground as per drawing.
3. 12 Nos Template Lifting Jack shall be used by placing 3 Nos. between the pits. Jacks should be places on sand bags.
4. Assembled Templates should be lifted carefully on the jacks.
5. Stubs shall be bolted with the bottom part of template leg member (typically with member marked with No: 1).
6. All cleats shall be connected at the bottom with bolts, nuts and spring washer and be tightened duly.
7. Levels of all the four stubs shall be maintained by water level pipes and/or Auto Level instrument.
8. Stub to Stub distance and Template Top to Template Top distance should be measured at Back to Back arrangement and diagonally also. Template may be adjusted suitably to zero the difference of counter readings.
9. Surveyor should check whether the stub slope, back to back and diagonal distance are as per approved drawing or not. In case of any deviation, suitable adjustment to be made to make the same correct.

6.2 With Construction Prop: -

1. Excavated soil shall be kept 2000 MM away from the pit and there should not be any excavated soil in between adjoining pits.
2. Stub to be fitted with 2 Nos. prop members which are sufficiently long and strong with suitable holes at the ends as per requirement.
3. 4 Nos. Concrete cubes/block of size (30 cm x 30 cm x 15 cm) to be made of same grade of RCC of the foundation under progress.
4. Horizontal Offset at the bottom of the stub with respect to vertical is to be calculated for all types of tower with/without extension as given in the approved prop setting drawing.
5. Set the Total Station at Centre Peg of Location. Find out the half distance from stub to stub on top longitudinally and transversally from template/stub drawing.
6. Drive pegs on both longitudinal and transverse direction with Total Station by measuring the required horizontal distance from the centre peg. Also drive a peg with Total Station by making 450 angles with the longitudinal/transverse line at backside of the pit and on diagonal line of the pit
7. Now measure from both of longitudinal and transverse pegs up to the top of stub, which is to be kept with required slope. Bottom of stub is to be supported by a concrete block. Also measure the diagonal distance from centre peg to stub top.
8. Calculate the displacement of the stub at its bottom from the vertical line as per tower slope given in template drawing. Swing a plumb bob from the top of stub up to the bottom of stub to measure displacement from vertical line. Now the stub is placed at proper position.
9. Now, fix properly and tight one end of prop member with the stub by bolts & nuts. Other end of prop member should be firmly fixed with the ground with the help of foundation bolts & tommy bars and

be covered by sand filled bags. Similarly, another prop to be fixed at the 90^0 angles of the first one.

7. Plain Cement Concreting

1. Ensure availability of 100% quantity of the construction material before staring PCC work.
2. All the materials such as fine, coarse aggregates, water & cement required, the source should be approved and then tested in approved third party laboratories. Further any change in source shall be intimated to client and materials shall be re tested prior to use
3. Cement shall be adequately protected from moisture or contamination during transportation and storage at site.
4. Aggregates shall be stored in a manner, which prevents contamination by dust, clay, water or any harmful material as per relevant standard.
5. Cement should be kept on Wooden / Plastic Pallets with Tarpaulin.
6. The water used for mixing concrete shall be fresh clean and free from oil, acid and alkali organic materials or other deleterious substances.
7. The pH value of water shall not be less than 6.
8. Check the availability of measurement box (30x30x39) cm and other tools required for PCC work.
9. Locate Mixer machine/ Mixing platform at nearest convenient place from the foundation pit and place mixing sheet / placement chute near it to receive concrete from the mixing drum and put the same in the pit through chute.
10. Start Manual mixing/ Mechanical Mixing and fill the drum with required quantity of CA, FA, Cement & water, in the given order into the rotating drum or hopper with measurement boxes.
11. Nominal mix of approved grade / as per technical specification to be used for PCC work following relevant standard.
12. Commence mixing of concrete and continue for minimum two minutes and thereafter pour the mixed concrete on the mixing sheet / placement chute.
13. Commence pouring of concrete through chute as quickly as possible.
14. Spread the concrete with the help of shovel throughout the pit. Ensure that the spreading is even so that the thickness of the PCC is maintained as per construction drawing all across the pit bottom.
15. After spreading is complete, leave the concrete undisturbed for the required setting period.

8. Reinforcement Cutting, Bending, Placement and Binding

1. Check up the length of reinforcement bars of approved brand and grade available at store and prepare cutting ad bending schedule (as per Approved BBS/Drawing) to minimize cutting wastage.
2. Check the make, size and qty. of reinforcement bars and ensure reinforcement cage prepared and installed correct as per approved drawing/BBS.
3. Take required size and length of rod and put up on the cutting platform or at relevant place used for cutting purpose.
4. Cut the rod as per schedule and drawing with the help of mechanical cutter. No hammering or gas cutting to be done for reinforcement since it may affect the properties of the reinforcement bars.
5. Bending & fixing of bars for concrete reinforcement shall be in accordance with the technical specification and relevant standard.
6. Take the pre-fabricated material to the tower location where the foundation is to be cast. In case of inaccessible areas, head loading will be carried out.
7. Place the rod in longitudinal and transverse direction as per drawing.
8. All reinforcements shall be properly placed according to construction drawing with a minimum clear concrete cover as per the technical specification or 50 mm.
9. After verification of quantity, bind all rods at all crossing points with the help of binding wire of approved size and standard / make, so that the rods do not get disturbed at the time of placement of concreting.
10. Provide chairs as per drawing between top and bottom layers of rods wherever necessary with 1 Mtr x 1 Mtr. gaps.

9. Formwork Fixing

1. All details of form work, placing, stripping etc. shall be done as per approved foundation drawing.
2. Check the type of tower and foundation classification of a location where the foundation is to be cast.
3. Collect required size of form box from store.
4. Clean the formwork thoroughly and make sure the formwork is free from old concrete remains and other foreign materials.
5. Thin layer of shuttering oil as per standard practices shall be provided in inner side of the form box to get smooth surface of concreting.
6. Place the form box into the foundation pit.

7. Form boxes are to be bolted properly so that there will not be leakage of concrete slurry. In case of any minor gap, same shall be filled up by shuttering foam.

8. Check the dimension of all the form boxes, step box to ensure dimension as per drawing.

9. In case concrete has not set adequately, protection over the pad concrete will be provided to have a suitable working platform.

10. Reinforced Cement Concreting

1. Before placing of concrete the pit shall be cleaned properly.

2. Ensure availability of 100% quantity of the approved construction material before concreting.

3. Construction material should be properly stored at site location, Aggregates shall be stored in a manner, which prevents contamination by dust, clay, water or any other harmful material. In case of contamination with dust/clay due to ground strata the bottom layer of material is not to be used.

4. Aggregates shall conform to the specifications for coarse and fine aggregates from natural sources for concrete.

5. In case of wet aggregates, the amount of water shall be reduced with due moisture correction.

6. The water used for mixing the concrete shall be fresh clean and free from oil, acid and alkali organic materials or other deleterious substances.

7. Potable water is generally satisfactory for the usage in concrete production; the pH value of water shall not be less than 6.

8. Check availability of foundation drawing, vibrator, Cube (150*150*150 mm.), Slump Cone, pH meter, Measurement box and other tools required for concreting.

9. The concrete shall be mixed with concrete mixer, in no case hand mixing shall be allowed. In difficult location, where it is not possible to transport the concrete mixer, the CLIENT may allow hand mixing of concrete.

10. Nominal mix / Designed Mix of approved grade to be used for RCC work.

11. In case of Concrete Mix Design (Ready Mix concrete from batching plant can also be used with the CLIENT approval).

12. 50% of required water, Coarse Aggregate, Fine Aggregate, Cement and balance water will be put into the mixer in the given order for smooth mixing.

13. The mixing shall be continued until concrete of uniform colour and consistency is obtained.

14. Take slump cone test and check the workability as per FQP.

Rajasthan Transmission Limited

15. The concrete shall be deposited as nearly as practicable in its final position to avoid re-handling. It shall be laid gently (not thrown) and shall be thoroughly vibrated and compacted before setting commences and should not be subsequently disturbed.

16. Care shall be taken to avoid displacement of reinforcement or movement of form work and damage due to rains. As a general guidance, the maximum free fall of concrete may be taken as 1.5 metre.

17. Commence pouring of concrete through chute as quickly as possible.

18. The concrete shall be laid in 150 mm layers and consolidated well, so that the cement cream works up to the top and no honey-combing is left in the concrete.

19. The mechanical vibrator (40/60 mm.) shall be employed to ensure zero honeycomb post concreting. Vibrator should be used for a limited period of time to avoid segregation.

20. Template Levels, Diagonal and back to back measurements should be checked at regular intervals during concreting.

21. Sampling & testing of cubes shall be done as per approved FQP.

22. In case of sub soil water, sufficient numbers of boring should be placed to lower the ground water level below foundation depth and dewatering shall be kept continued before, during and up to post 24 hours of concreting.

23. There should be no disturbance of concrete by water during dewatering process.

24. Above processes should be continued to fill up the form box and complete the concreting as per approved drawing.

25. Stripping of forms to be done after setting of concrete.

26. Post pour inspections such as Concrete surface, levels, diagonals etc. should be verified & recorded.

27. If the concrete surface is found to be defective after the formwork has been removed, the damage shall be repaired with rich cement sand mortar or as per approved methodology before the foundation is backfilled.

11. Curing

1. After the concrete is set, curing compound of approved brand and specification shall be applied on the concrete surfaces thoroughly as per the recommendation of the manufacturer.

2. In case where application of curing compound will not be possible, the foundation shall be wetted by applying adequate water on the concrete surface and keep the same wet till required curing period continuously.

3. For vertical surfaces, where deposition of water is not possible, jute bag wrapping shall be done. The jute bag shall be kept wet till required period without interruption.

4. In case of curing with water, the pit area to be kept wet with sufficient water deposition daily after backfilling and the exposed surface of chimney shall be cured by continuous wet jute bag wrapping. The same shall be continued till the prescribed curing period as in the technical specification.

Backfilling

1. Backfilling shall be started after minimum 24 hours of concreting and after removal of form boxes.
2. The excavated earth shall be deposited in maximum 200 MM layer levelled, wetted if necessary, and compacted properly before another layer is deposited by means of rammers.
3. Backfilling shall normally be done with the excavated soil unless it is clay type or it consists of large stone boulders in which case boulders shall be broken to a maximum size of 80 MM. Sometimes borrowed earth may be required for backfilling.
4. Backfilling material should be free from organic or other foreign material.
5. The backfilling and grading shall be carried to an elevation of about 75 MM above the finished ground level to drain out water. After backfilling 50 MM high earthen embankment should be made along the side of excavation pits and sufficient water should be poured in backfilled earth for at least 24 hours.

Note: Specification of the equipment specified shall be in accordance with latest safety guidelines issued DRAIPL safety department.

Rajasthan RE 48 Power Transmission Limited

DINESHCHANDRA RENEWABLES PVT. LTD.

STANDARD OPERATING PROCEDURE (SOP)
FOR
TOWER ERECTION

Rajasthan V 4B Power Transmission Limited

Document Release Authorisation: -

	Prepared by	Reviewed by	Approved by
Date	15/03/2025	15/03/2025	15/03/2025
Name	Somesh Sehrawat	Radhekant Mishra	Harshith Vadnala
Department	QA/QC	QA/QC	QA/QC Head

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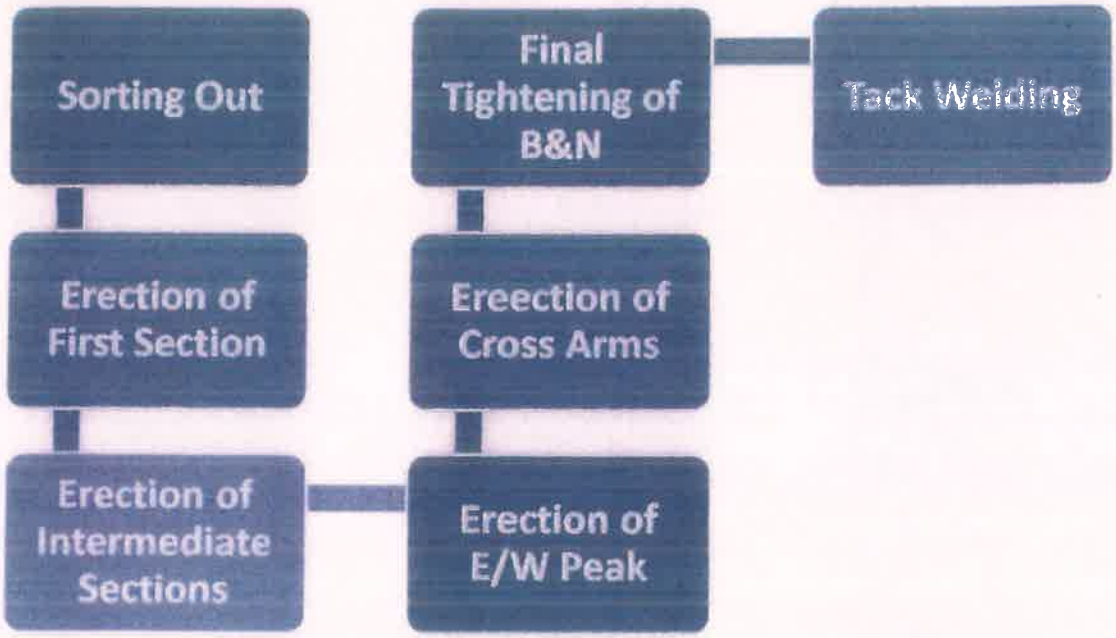
Rajasthan IV Power Transmission Limited

1 Introduction

This methodology explains detailed arrangement required for erection of Transmission Tower by using Derrick Pole Method.

2 Work Sequence

The work sequence for executing a pile foundation will be as follows.



3 Method of Tower Erection

Tower erection shall be done following the below procedure.

3.1 Sorting Out

1. Check the bundle of the tower material with the bundling plan and unbundle the same at site. Spread the tower materials over wooden support on the ground so that tower member should not touch the ground.
2. Check the tower member as per approved drawing and arrange the members according to the assembly plan.
3. All the members shall be sorted out properly at the erection site to check that all items are available as specified in approved drawing and shall be placed in a manner such that they are easily located during erection.

3.2 Erection of First Section

1. Anchor the winch machine (10-ton capacity) at a suitable place for onward erection of tower members. Use of tractor for lifting activity is strictly prohibited.
2. Erect four main corner leg members of the first section using winch and connect it with stubs keeping bolts nuts loose.
3. Raise assembled unit of the cross braces of the first section using winch and bolt to the leg angle.
4. Connect other tower parts with bolts/nuts in 1st section.
5. Fix guy ropes on each leg with PP ropes (18 mm, 20mm & 22mm) to support the erected leg.
6. All Guy ropes shall be grounded with two cross crowbars firmly driven in the soil for 2/3rd of its length in an angular way.
7. Place four set of derrick poles one on each leg for raising tower parts from second section and guy these Derrick Poles Attach single way pulley on the top of derrick to lift tower parts required in 2nd section.

3.3 Erection of Intermediate Sections

1. With the help of Derrick lift main legs of the 2nd section using power winch m/c and connect to the main legs of 1st section. Subsequently lift other bracing member with the help of pulleys fitted to derrick and connect these members as per drawings.
2. Lifting of cross members bracing and belts shall be done with help of mechanical equipment and pulley arrangements.
3. Fixing and tightening of diagonal/ plan members of each section as per drawing.
4. Progressively shift derrick pole upwards to the leg members on top of second section for raising the parts of third section and continue till complete tower is erected.
5. The bottom most section should be firmly tight prior to starting of the basic body
6. Repeat steps till the erection of the complete tower body with peak.

3.4 Erection of E/W Peak

1. Assemble the E/W peak completely on the ground over a support as per drawing.
2. Erect E/W peak one by one using winch to the top of the tower and fix the same as per erection drawing.

3.5 Erection of Cross Arms

1. Assemble the cross arms completely on the ground over a support as per drawing.

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2. Start erection of cross arm from top to bottom using mechanical equipment and pulley lifting arrangements and use a steel rope for lifting the cross arm.
3. Box / longer cross arm to be installed the opposite side of the deviation angle.
4. Pointed / shorter cross arm shall be installed inside (towards deviation angle).
5. Check the deviation angle of the tower in case of tension tower w.r.t starting point and approved tower schedule to decide the placement of shorter and longer cross arm.

3.6 Final Tightening of B&N

1. Ensure connection of all members with required sizes of bolts/nuts, washers as per drawing.
2. All nuts shall be tightened properly using correct size spanner and torque wrench.
3. Before tightening, it will be verified that filler washer and plates are placed in relevant gap between members, bolts of proper size and length are inserted and one spring washer is inserted under each nut.
4. In use of step bolts, spring washers shall be placed under the outer nuts.
5. The tightening of bolts shall progressively be carried out from the top downwards.
6. Care to be taken that all bolts at every level are tightened simultaneously.
7. Bolts shall be fully tightened At least 3 threads of bolt's should be outside of nuts after full tightening.
8. The thread of bolts projecting outside the nut shall be punched at three position on the diameter to ensure that the nuts do not loose in course of time.
9. If during tightening a nut is found to be slipping or running over the bolt threads, the bolt together with the nut shall be replaced.
10. Check verticality of towers with the help of Total Station in both transverse and longitudinal direction and record the readings.

3.7 Tack Welding

1. Use a portable generator of rating 18 kV for double holder and 10 kV for single holder along with welding rods of 3.15 mm dia.
2. The threads of all the bolts except anti-theft bolts projected outside the nuts will be welded two diametrically opposite places.
3. The circular length of each welding shall be at least 10 mm.
4. The welding shall be provided as per technical specification.

5. After welding clean the bolts with brush. Then zinc rich primer having approximately 90% zinc content shall be applied to the welded portion.

6. At least two coats of the paint shall be applied.

7. The surface coated with zinc rich primer shall be further applied with two finish coats of high build enamel of the grade recommended by the manufacturer of zinc rich primer.

Note: Specification of the equipment specified shall be in accordance with latest safety guidelines issued DRAIPL safety department.

Rajasthan W 4B Power Transmission Limited

DINESHCHANDRA RENEWABLES PVT. LTD.

STANDARD OPERATING PROCEDURE (SOP)
FOR
STRINGING

Rajasthan IV AB Power Transmission Limited

Document Release Authorisation: -

	Prepared by	Reviewed by	Approved by
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Department	QA/QC	QA/QC	QA/QC Head

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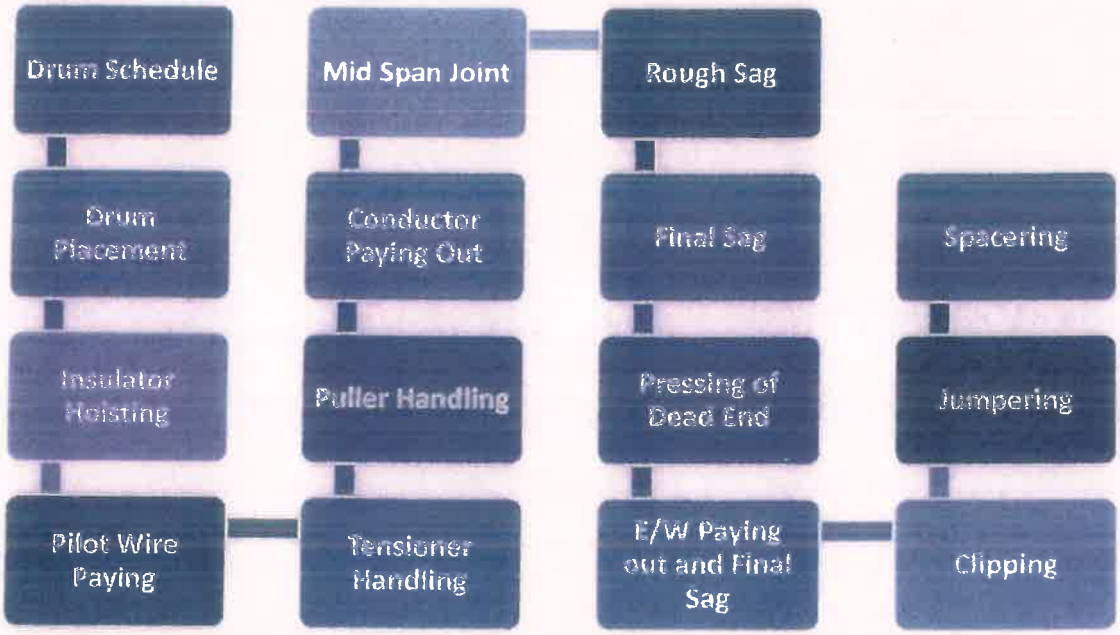
Rajasthan RVPN Power Transmission Limited

1 Introduction

This methodology explains detailed arrangement required for Stringing of Transmission Tower using tension stringing method.

2 Work Sequence

The work sequence for executing a pile foundation will be as follows.



3 Method of Stringing

Stringing shall be done following the below procedure.

3.1 Drum Schedule

1. Make a list of conductor / earth-wire drum no. and length available at store.
2. Match the drums with sectional length shown in tower schedule.
3. Allocate the drums in such a way that the lengths of wires are optimally utilized which will minimize cut length & wastage.
4. Conductor joints shall be minimum 35 Mtr. away from supports.

5. There should not be more than one joint per conductor in a span.
6. There should not be any joint in major river/road/railway/power crossing and in single span section also.
7. After allocation of drums to particular sections, prepare drum schedule.
8. Prepare list of longer cut lengths for possible use in the shorter spans of single sections.

3.2 Drum Placement

1. Check drum schedule and celled the drums from store.
2. Place drums as per drum schedule.
3. Select drum length matching to phase and circuit planned and as per sequence of pulling.
4. Select place backside of the tensioner for workable space and easy moving of crane and jack.
5. Place the selected drum for paying out at least 7 m to 10 m behind tensioner
6. Ensure drum rotation during pulling in the same direction of the tensioner / aerial roller.

3.3 Insulator Hoisting

1. Check the soundness of insulator or continuity by verifying IR measurement register ready at store.
2. Check the quantity of insulators. Chipped or damaged insulators are not to be used.
3. Clean inner side and outer side of insulators with soft cloth.
4. Assemble required parts of hardware for suspension and tension insulator as per drawing.
5. Make insulator string by connecting required number of insulators discs (as per specification requirement of the transmission line) and hardware fittings.
6. Check the availability of insulator pins.
7. Select and check lining rope, pulley, sling etc.
8. Provide jute bags on the tower body before sling is passed and pulley is fixed.
9. Lift the insulator string by tying one end of rope or sling to the top of assembled insulator unit and pass the other end through single way pulley and connect to the winch and start lifting of insulator string.
10. Connect one extra rope for back support and smooth tilting of insulator string.
11. Hold the guy rope during lifting of insulator. Insulator hoisting to be done slowly and carefully.

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12. Fix top or insulator String at the X-arm point with bolts, Split pin etc.
13. Ensure aerial roller are freely moving.
14. Lift the rollers/running out block in the same manner as like as insulator string. Connect the same to bottom of insulator string.

3.4 Pilot Wire Paying

1. Check completion of insulator hoisting for the section where pay out of pilot wire to be carried out.
2. Place pilot drum on pilot drum bracket Use spindle for easy rotation.
3. Use scaffolding for road crossing, telephone line crossing.
4. Connect one end of the pilot wire to the hook of Power Winch and the other end with one end of pilot wire of next drum by using pilot connector.
5. Lay pilot wire for the selected section through aerial rollers.
6. Follow all safety requirements. Technicians to climb to the X-arm of the towers to check passing of prior wire through aerial roller smoothly.
7. Maintain communication with workmen during paying out operation.
8. Use Pilot connectors for connecting two or more pilot wires to get the required length of section.
9. Take the pilot wire end connected with the Power Winch hook to the Puller.
10. Operate Puller and tighten the Pilot Wire.
11. Connect the other end of pilot wine to the conductor through head board near tensioner.

3.5 Tensioner Handling

1. Tensioner shall be placed on the alignment of lower line and should be placed about 250 Mtrs. to 300 Mtrs. away from suspension tower along the fine with proper anchoring of tensioner at backside.
2. Hydraulic oil, engine oil, diesel and water to be checked.
3. Tensioner m/c will be started by switch and it will run idle for 5min and it is to be ensured that break is working properly.
4. Both side jacks of machine are to be placed on level ground to prevent movement.
5. Rope of 16 mm / 18 mm dia to be rounded on the groove of the winch drum of the tensioner and tighten the same.

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6. One end of the rope- will be passed through the roller placed on the tensioner in front direction and other end will remain at back side of the machine.
7. If paid wire is multiple then equal numbers of ropes to be rounded.
8. One end of conductor to be opened from drum and is to be cut keeping all the strands tightened properly by the binding wire.
9. Conductor ends to be placed inside the socks
10. One end of rope which comes through the back side of the tensioner is to be connected with end of socks eye.
11. Rope on the groove of the winch drum of tensioner shall be kept tight.
12. Now start tensioner and release the rope from the tensioner slowly.
13. Now the socks (bundling conductor) will come out through tensioner and will reach up to head board. Attach socks with the head board.
14. The paid pilot to be pulled by tensioner in reverse direction and clamp will be released.
15. Oil pressure is to be checked. If it is not in order then it can be increased or decreased as required for controlling tension.
16. Break is to be released and tension will be adjusted as required / specified.
17. During pulling by puller m/c tension is to be adjusted so that conductor will remain about 5 Mtr above the ground level.
18. Alter release of 100 Mtrs. conductor from tensioner during pulling, ground roller will be provided 20 Mtrs. away from the tensioner along the conductor at least up to100 Mtrs. so that the conductor is remaining above ground.

3.6 Puller Handling

1. Puller to be placed in the alignment of tower and it should be 250 Mtr. to 300 Mtr. away from the suspension tower along the line with proper anchoring of puller.
2. Hydraulic oil, engine oil, diesel, water to be checked.
3. Start puller machine by switch and it will run idle for 5 minutes. Check whether that break is working properly or not.
4. Jacks of puller m/c at both and (back and front) are to be placed on level ground for balancing the m/c during pulling.
5. Earthing arrangement of the m/c is to be done.
6. Winder will be adjusted by hydraulic jack and empty bobbin drum will be placed on winder and care is to be taken that bobbin drum is in proper position and not rubbing against the ground.

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7. Paid pilot wire is wrapped on the grooves of bull wheel and to be connected to the bobbin.
8. Operate the winder for winding of pilot wire.
9. Start pulling of pilot wire and after tightening the pilot wire, release pilot clamp which was bolted at the time of rough sagging of pilot.
10. Now the pilot wire is ready for pulling the conductor through puller machine.
11. During pulling of pilot wire when pilot connector comes into the bobbin, stop pulling.
12. Pilot bobbin with winded pilot wire is now to be replaced by another empty pilot bobbin.
13. Continue pulling in the same manner till paying of conductor is completed.

3.7 Conductor Paying Out

1. Ensure availability of back tension at a tension tower from where the stringing is to be commenced.
2. Where back tension is not available, back stay is to be provided.
3. Head board is to be connected which consist of sufficient articulated joint and smooth rotation of the joints is to be ensured.
4. Sufficient articulated joints are to be connected on the backside of the head board with socks eye with a quarter pin. (i.e. 6 Nos. for hexa conductor).
5. Start puller machine as per work instruction.
6. Start tensioner as per work instruction.
7. Check communication system to have proper communication with the workmen at both ends and along with the running headboard.
8. During pulling operation, keep watching on drum jack and conductor to avoid damages
9. During pulling when headboard passes through aerial roller, pulling shall be done slowly.
10. Conductor should not rub the ground during pulling. If conductor touches the ground then, load at tensioner m/c is to be increased so that conductor passes in a tight position and increase pulling tension suitably. For near vicinity of the tensioner point and puller point, move the conductor through ground roller.
11. If sectional length is more than the drum length, joint the conductor with the help of double end socks after stopping puller and tensioner. One end of already paid conductor and one end of next conductor is to be joined through the two ends of double socks.
12. Now pulling is to be done slowly till the double socks pass through the tensioner for compression of mid span joints.
13. Hold conductors by clamping with proper arrangement. Conductor is to be opened after passing of double socks.

14. Pull out 3/4 Mtr. conductor manually through tensioner for ease of jointing.
15. Conductor jointing to be done as per relevant work instruction.
16. Joint will be covered with joint protector to avoid damages of the joint while passing through the roller.
17. After releasing of clamp from the conductor start pulling till the head board reaches the puller machine.
18. After completion of pulling the dead-end connection of aluminium as well as steel wires of conductor at one end is to be done as per relevant work instruction.

3.8 Mid Span Joint

1. Check Dies (Aluminium and Steel) with Hydraulic joint machine with respect to conductor and earthwire.
2. Ensure availability of the material such as aluminium sleeve, steel tube for ACSR conductor etc.
3. Prepare the ends of the conductor for jointing by diametrically cutting the end with hydraulic cutter/ high speed hacksaw blade.
4. Use binding wire on conductor to keep intact the strands at their position.
5. Cut diametrically after binding only the aluminium strands of the conductor at the end leaving about a distance of 50% length of steel sleeve (after compression) and thereafter bind the steel strands near cut ends.
6. One end of the conductor is to be placed inside the aluminium strips and steel strands to be placed inside the half length of the steel tube. Steel strands of the other conductor to be placed inside the remaining half length of the conductor.
7. After placing steel strands into the tube and sleeve binding wire is to be removed.
8. Place the steel tube inside the groove of the die.
9. Hold both the end of the conductor straight and close pressure releasing valve.
10. By operating high speed / low speed level, rams holding die sets will come closer and the jointing will take place at that position. Release the pressure and shift the position of steel sleeve. Repeat this procedure till the entire length of steel sleeve is pressed.
11. Release pressure valve and replace steel die set with aluminium die.
12. End of aluminium surface of both conductors shall be covered finally by compressive zone of the aluminium sleeves and steel portion shall be covered by non-compressive zone of the sleeve.
13. Pressure release valve again is to be closed and jointing of aluminium portion is to be done at compressive zone of the sleeve in the same manner as explained above.
14. After pressing of steel tube and aluminium sleeve, edge of steel tubes and aluminium sleeves is to be filed by flat file.

15. Mid span joints shall be minimum 35 Mtr. away from the tower structure.
16. No joint shall be in span crossing over main road, railway, and river and also in single span section.
17. Record the dimension of MS Joint before pressing and after pressing.

3.9 Rough Sag

1. Raise the dead and assembly pressed with conductor by appropriate rope pulley arrangement In order to attach the dead end assembly with the hardware fitted with insulator on the tension tower where make up is to be done.
2. Make up of conductors is done as per work instruction.
3. Apply pulling to the conductor with Tensioner / Puller / Lefty with lead wires near the other tension tower where final sag is to be taken.
4. Pull till conductor is sufficiently above the ground in each span.
5. Attach lead-wire to the conductor with 'D' Shackle and come along clamp.
6. Attach other end of lead wire with 'D' shackle to the temporary anchors with deadment as per site condition to sustain load of conductor.

3.10 Final Sag

1. Make up and rough sag operation is to be done as per work instruction in case rough sag has not been done of that section.
2. Make tension insulator string fitted with tension hardware near the tower where final sag is to be taken. Hoist insulator string as per work instruction.
3. Fix sag plate with the yoke plate attached at the bottom of insulator string. Final sag lefty with lead wire to be connected with the other side of' sag plate with proper arrangement. Connect equalizer pulley to the other end of the lefty with the help of 'D' shackle.
4. Pass a 16 mm dia. lead of length 50 Mtr. (approx.) through the equalizer pulley. Attach 5 Mtr. (approx.) sling to both end of the lead wire. Clamp conductor by two nos. come along clamp connected with each other by a small sling. Connect the back side come along clamp with that 5 Mtr. sling by 'D' shackle.
5. Check the whole arrangement again as it is ready to take final sag load.
6. Attach the other end of the lead wire running through the lefty via single pulleys fitted with tower body (wherever necessary) to the stationed Power Winch.
7. Note the temperature of the day.
8. Place sag board on both towers of the span selected for measuring the sag.

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9. Operate the Power Winch so that conductor comes towards the X-arm.
10. Continue pulling till the null point of conductor at the selected span matches with the sag board marking.
11. Stop pulling and put safety clamp on head wire.
12. Hang marking roller on X-ing and raise conductors by putting socks at ends with the help of marking lead through marking roller.
13. Pull the other end of marking lead by men or winch till the conductor comes at same level of lefty wire.
14. Mark on conductor by marking tape where the conductor is to be cut for pressing of steel and aluminium dead end.
15. Lower the conductor on ground and press dead ends as per work instruction.
16. Raise dead end assembly fitted with conductor and attach the same with sag adjustment plate fitted with yoke plate.
17. Apply lead on lefty lead wire by moving handle of winch to release the safety clamp.
18. Release load on lefty by moving handle of winch in opposite direction so that man can go from insulator string to the come along clamp fitted on conductor to release the clamp.
19. Remove the lead wire from the winch and loose the lefty wire so that man can easily open the come along clamps from final sagged conductor.
20. Let the man come down at ground. Remove the lefty with lead wire from that X-arm.
21. Continue this process till all the phases of conductor are finally strung on that tower.
22. Record the sag, temperature and dead ends details before and after pressing.

3.11 Pressing of Dead End

1. Check aluminium and steel die set as per the type of conductor/ earth-wire.
2. Check availability of compression dead and (aluminium and steel). Check dimensions with respect to drawing.
3. Cut end of conductor as per marking given on it by marking tape at final sag position diametrically by hydraulic cutter / high speed hacksaw blade after binding properly.
4. Cut diametrically after binding only the aluminium strands of the conductor at the end leaving about a length required for pressing with steel dead end. Bind the steel strands near cut end.
5. Conductor is to be placed inside the aluminium dead end and steel strands of the conductor is to be placed inside the steel dead end.
6. Conductor steel dead end is to be placed inside the groove of the steel die.

7. Hold the conductor straight with the steel dead end placed inside the jointing machine and close pressure releasing valve.
8. Press steel dead end as per work instruction.
9. Release pressure valve and replace steel die set with aluminium die.
10. Cover pressed steel sleeve portion of steel dead end by aluminium dead end in such a manner that now compressive zone of aluminium sleeve should be just over pressed steel portion.
11. Pressure release valve is to be closed again and pressing of aluminium dead end is to be done at compressive zones in the same manner.
12. Pressure releasing valve is to be opened and pressed dead end is to be removed from the hydraulic machine.
13. Record the dimension of steel dead end, aluminium dead end and before pressing and after pressing.

3.12 E/W Paying out and Final Sag

1. Place earth wire drum as per drum schedule.
2. Place tum-table on level ground. Ensure that breaks are working properly.
3. Place earth wire drum on the turntable.
4. Remove covered planks on the drum.
5. Place earth wire roller on the earth peak of the towers.
6. Pull one end of earth wire manually or with power winch through ground roller.
7. Complete earth wire pulling of the span up to the nearby suspension tower. Thereafter earth wire to pass through earth-wire roller placed on the earth peak on tower. Continue pull through suspension towers up to tension tower.
8. Ensure communication during paying out with workmen who will give signal by red/green flags.
9. After completion of pulling operation of earth-wire for a section, press end of earth-wire with the dead end of tension fitting by a hydraulic compressor machine.
10. Hang the dead end pressed with earth-wire on the earth-wire peak of tension tower by quarter bolt (make up operation).
11. At another tension tower location of that section, connect lead wire with earth-wire by connecting clamp and 'D' shackle. Operate power winch for lifting the earth-wire.
12. Then by power winch carry out rough sagging. Ensure that alter rough sag the earth-wire remains above top X-arm of tower. Release power winch by clamping the rough sagged earthwire.

13. Before final sagging check availability of back tension at both the tension towers where final tension is to take place.

14. After checking temperature. find out sag from earth-wire sag tension chart for the selected span. Fix sag board accordingly on both towers of that span by measuring downward from earth peak.

15. Final sagging arrangement is to be done by using single way pulley on earth peak and one marking lead (150 Mtrs. long) has to pass through the pulley.

16. One end of the lead is to be connected to earth-wire clamp which is to be bolted with rough sagged earth-wire and the other end of the lead is to be connected with the power winch through pulleys provided on the tower wherever necessary. Release the clamp which was put to hold rough sag.

17. Pulling of lead is to be done by power winch slowly to bring the earth-wire at its final position.

18. When earth-wire null point coincides with the line of sag boards fixed on towers then marking is to be done by the marking tape on lead / earth-wire at earth peak point.

19. Marked earth-wire with lead is to be brought down by releasing load from the winch.

20. The steel dead end and aluminium sleeve of earth-wire tension hardware are to be pressed.

21. Earth-wire end with pressed dead end shall be lifted to take it to earth peak and connect the dead end to the tension plate of peak.

22. Record the length of steel dead end before and after pressing. Earth-wire end with pressed dead end shall be lifted to take it to earth—wire peak and connect the dead end to the tension plate of peak.

3.13 Clipping

1. Check required tools to four sheave pulley with lead wire clipping hanger, D-Shackle, Single pulleys and rope etc.

2. Pass a rope through a single pulley fitted with X-arm to lift the lefty up to the tip of X-arm.

3. Set the length of the lefty as such as it is more than the length from X-arm tip to conductor. Lift the lefty and fix one end with x-arm tip.

4. Hang clipping hanger from the hook of four sheave pulley at other end of the lefty to hold conductors.

5. Pull the lead of the lefty by the winch to tighten the lefty via single pulleys fitted on tower body. Keep watch that conductors rest on hanger.

6. Stop pulling when conductors do not have any touch with roller. Mark on conductor where suspension clamp is to be fitted.

7. Bring the roller to the ground by proper arrangement. Wrap P.A rod spirally on the conductor.

8. Fix suspension clamp at the marked position on conductor. Attach suspension clamp with yoke plate of insulator string.

9. Release the load on the lead. Now the conductor load is on X-arm through suspension fitting and insulators only.

10. Fit vibration dumpers as per drawing. Continue the process at all X-arms of that tower to complete clipping.

3.14 Jumpering

1. Vertical distance between tip of X-arm and nut point of the jumper. Called jumper drop is to be noted from technical specification.

2. Tie a rope at the tip of X-arm hanging a length of equal to the length of jumper drop.

3. Hang another nope of which one end is to be hold with the dead end cone and other end of the rope is also to be hold with the other dead end cone at opposite side of X-arm in such a manner that it just touches the rope so called jumper drop.

4. Mark on rope at both side of dead end cones, Lower down the marked rope on ground and cut conductor of length as per marking given on rope for jumpering.

5. Place splice of conductor inside the jumper cone.

6. Press both end of conductor with jumper cone by hydraulic machine as per work instruction.

7. The conductor splice with pressed jumper cones is to he bolted with the aluminium dead ends of opposite side.

3.15 Spacering

1. All required tools to be checked Le 12 mm dia. PP rope, single way, pulley, spacer trolley/spacer cycle.

2. Raise Spacer trolley / spacer cycle on the phase conductor and place the wheels of the trolley/cycle on conductor.

3. Raise line spacer / spacer cum damper by rope and kept on the spacer trolley / cycle.

4. Run Trolley / cycle on conductor from tower to tower and fix spacer after measuring the length as per spacer chart.

5. Fix rigid spacer on jumpers by sitting on belt which is fixed at X-arm of angle point.

Note: Specification of the equipment specified shall be in accordance with latest safety guidelines issued DRAIPL safety department.

Rajasthan IV Power Transmission Limited